REPRODUCTIVE CARE: TOWARDS THE 1990'S

Second report
of the
Advisory Committee
on Reproductive Care

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September 30, 1987

Ms. Elinor Caplan,
Minister of Health,
Ontario Ministry of Health,
Queen's Park,
Toronto, Ontario

Dear Ms. Caplan:

Please accept [illegible] congratulations on your appointment as Minister of Health. I am enclosing a report of your Committee entitled "Reproductive Care: Towards the 1990's". I am also enclosing reports of the regional Perinatal Committees which were submitted to us over the past year.

I am very sorry that we are unable to present the Report to you in person but certainly understand that you will have many important responsibilities over the next few weeks. Our Committee would be very anxious to meet with senior members of the Ministry to present an overview of the Report and to answer any questions that might come up as a result of the contents of the Report. It might be particularly useful if we were able to discuss the report with Dr. Allan Dyer and/or Mr. Randy Reid.

The Committee is also hopeful that you will be able to release this Report to Members of the Health Professions with an interest in perinatal care in Ontario. We believe the contents of the Report would be of great use to health care providers in the Province.

Many thanks for your attention in this matter.

Yours sincerely,

John Patrick, M.D., F.R.C.S. (C)
Chairman,
Minister's Advisory Committee,
Reproductive Care,
Province of Ontario

JPa/tc

TABLE OF CONTENT

PAGE

- EXECUTIVE SUMMARY I
- SUMMARY OF RECOMMENDATIONS........................III
- CHAPTER I: INTRODUCTION........................1
  - I. Background Information........................1
  - II. Terms of Reference........................1
  - III. Members of the Committee........................2

- CHAPTER II: PREVENTIVE STRATEGIES: LIFESTYLE AND COMMUNITY CARE........................3
  - I. Background Information........................3
  - II. Discussion........................3
  - III. Regional Committees........................6
  - IV. Implementation........................6
  - V. A Primary Prevention Strategy for Ontario......7

- CHAPTER III: PRIMARY CARE CHALLENGES: CONTINUITY AND RESPONSIBILITY........................11
  - I. Continuity of Care........................11
  - II. Continuity of Care for the Infant.............14
  - III. Conclusion........................15

- CHAPTER IV: IMPLEMENTATION OF REGIONALIZED PERINATAL SERVICES........................16
  - I. Background Information........................16
  - II. Rationalization of Hospital Facilities in the Six Health Regions........................16
  - III. Important Issues for Support of Regionalized Perinatal Care in Ontario........................23

- CHAPTER V: NORTHERN ONTARIO: SPECIAL CONSIDERATIONS AND CONCERNS................28
  - I. Background Information........................28
  - II. Manpower Needs........................28
  - III. Problems of Perinatal Care in Small Isolated Communities........................29
  - IV. Accessibility of Prenatal Services............30
  - V. Continuing Education and Training.............31
  - VI. Level "O" Community Hospitals.................32
  - VII. Transportation........................32

- CHAPTER VI: HEALTH CARE PERSONNEL: A CRISIS IN SUPPLY 34
  - I. The Problem........................34
  - II. Background Information........................34
  - III. Role Descriptions........................35
  - IV. Training Programs for Perinatologists.........37
  - V. Special Problems of the North.................37
  - VI. Possible Solutions to the Crisis in Medical Manpower........................37
  - VII. Nurse Specialists........................39
  - VIII. Expanded Role Nurses........................42

- **CHAPTER VII: MONITORING OF PERINATAL CARE: PROPOSED FRAMEWORK**....................................43
  - I. Background Information..........................43
  - II. Implementation of the Ontario Perinatal Program..43
  - III. Re-establishment of Minister's Advisory Committee on Reproductive Care...............44
  - IV. Re-establishment of Regional Perinatal Advisory Mechanisms............................45

- **APPENDICES**..48
  - Appendix A: Health Regions.....................49
  - Appendix B: Issues for the Proposed Expert Committee to Consider...........................50
  - Appendix C: Strategies Dealing with Changing Trends in the Delivery of Reproductive Care....57
  - Appendix D: Directions in Health Care: Issues Relating to Childbirth..................64
  - Appendix E: Levels of Perinatal Care 112
  - Appendix F: Selected Perinatal Mortality Data, Ontario 1979 1981 1983..................115
  - Appendix G: Report of the Subcommittee on Reproductive Morbidity.....................154
  - Appendix H: Protocol for a Provincial Perinatal Bed Registry.................................157
  - Appendix I: Emergency Inter-Hospital Maternal Transfer Guidelines..........................162
  - Appendix J: Guidelines for Transport of Infants by Transport Team, Hospital for Sick Children............................166

EXECUTIVE SUMMARY

In 1979, the Advisory Committee on Reproductive Medical Care (henceforth known as the 1979 Report) made the recommendation to the Ministry of Health that the Province establish a Minister's Advisory Committee on Reproductive Care (henceforth known as the Committee) and that six Regional Perinatal Advisory Committees be established. These committees would report annually, in order to implement a plan developed for regionalized perinatal care, to the Committee. As a result the Ministry established, in 1983, the Committees as recommended by the 1979 Report. During the period 1983-1986, both the Committee and the Regional Perinatal Advisory Committees worked diligently to address the terms of reference which had been established.

This report contains future recommendations for the integrated perinatal program in the six health regions in Ontario. The regional plan has been suggested, and developed through the efforts of the six Regional Perinatal Advisory Committees. These committees have each established plans based on population, geography and existing facilities, to rationalize services in perinatal care in the Province.

The Regional Committees and the Committee conducted manpower surveys and made recommendations for improvements in manpower supply in both the medical and nursing professions. The Committees recognized the special problems of establishing sophisticated perinatal services in Northern Ontario and have examined how more efficient use of health professionals could assuage the situation of critical shortage of medical manpower.

The Committee, together with the staff of Emergency Health Services in the Ministry of Health, have developed a more efficient system of transport for women and babies requiring tertiary perinatal services in the Province. The Provincial Perinatal Bed Registry for tertiary perinatal care is unique to perinatal services and could become a model for other tertiary services available in the Province. The whole process of regionalization of perinatal care could serve as a model for other high-tech medical services in Ontario.

The Regional Committees and the Committee have largely succeeded in convincing health professionals in the Province, voluntarily, to make use of the antenatal forms circulated by the Ontario Medical Association. As a result, a standardized system of record keeping is now in place across the Province.

The Committee has considered several suggestions regarding improved documentation and analysis of perinatal statistics and, with the publication of this report, will present the first statistics available for the Province of Ontario that address the issue of perinatal mortality related to place of birth, hospital obstetrical volume, maternal residence and birthweight. A more detailed report, together with analysis, will be published by the Committee later this year.

The Committee recognizes that a very great need exists for education and promotion programs in perinatal health. Chapter II of this report makes reference to the fact that large numbers of professionals are involved in preventive programs, but that a need exists for a provincial plan which would integrate and rationalize preventive programs with a goal of reducing perinatal morbidity and mortality and, in particular, the incidence of low birthweight infants. Reductions in Ontario Perinatal Mortality Data show the success of regionalization in the management of high-risk pregnancies. The Ontario Perinatal Program must tackle the more difficult issue of prevention of low birthweight infants. The Committee has recommended that the next Advisory Committee make the development of a Provincial Perinatal Prevention Program a priority.

The Committee recognizes the need for considerable emphasis on basic and clinical research on the influence of lifestyle and the effects of environmental agents such as cigarette smoking and alcohol on fetal health. There is a need for evaluation of programs of intervention and assessment of perinatal outcome and these research areas would need to be addressed prior to successful implementation of a Provincial Perinatal Preventive Program. The need for basic and clinical research, in the area of perinatal health, should be placed near the top of the priorities for the next Advisory Committee on Reproductive Care.

SUMMARY OF RECOMMENDATIONS

. PREVENTION STRATEGY:

1. The Ministry of Health should undertake to increase the effectiveness of primary prevention in the reproductive care system.

2. Responsibility for ensuring a primary prevention strategy for reproductive health care in Ontario should become a top priority in the terms of reference for the next Minister's Advisory Committee on Reproductive Care.

3. A multi-disciplinary expert committee should be struck to review scientific evidence and develop a provincial plan with priorities and strategies for research and implementation.

4. The Provincial primary prevention plan should then be implemented regionally following the model of the 1979 Report.

5. Cigarette smokers, moderate alcohol consumers and teenagers are risk groups which should be targeted for effective primary prevention strategies.

. CONTINUITY OF CARE:

6. One member of the reproductive health care team should assume responsibility for ensuring continuity of care for pregnant women.

7. The multiple health professionals providing reproductive care should always use a team approach.

8. A copy of the Ontario Antenatal Record Forms should be made available to individual pregnant women so that they may carry them at all times, in order to facilitate continuity of care.

9. A practical Child Health Record needs to be adopted for province-wide use in Ontario.

. REGIONALIZATION OF PERINATAL SERVICE:

10. One Level 3 perinatal unit is required in Ottawa. If the Eastern Region Perinatal Committee recommendation, which has been passed on to the Ministry, is not acceptable locally, an external committee should be constituted to identify, in an objective and knowledgeable fashion, a single Level 3 Perinatal Unit in Ottawa.

11. Program and financing mechanisms must be established to support the development of medical and nursing staff which will ensure functioning of modified Level 3 units in Northern Ontario and tertiary units in Southern Ontario.

12. The Ministry must develop programs to ensure availability of adequately trained medical and nursing personnel for staffing of level 1, 2 and 3 perinatal centres. Without such personnel, the entire system will collapse.

13. The Ministry must recognize and financially support recommended Level 2 units to ensure that the requirements of Level 2 patients can be met and also to ensure that Level 3 units are able to refer convalescent patients, in order that the restricted resources remain available for Level 3 patients.

14. The number of formally recognized Level 2 units, and their beds, in each region should be appropriate to the number of patients requiring Level 2 care in that region unless there are overriding geographic considerations.

15. Descriptive standards for Level 1 perinatal units, which emphasize family centered personalized care, must be developed for all regions of the Province and a mechanism for site visiting should be instituted in all regions in order to improve the standards of care in Level 1 units.

16. A coordinating regional mechanism for monitoring the total Provincial Reproductive Care Program is essential to ensure proper distribution and use of facilities, standards, data collection and quality control in all regions.

17. The collection of Perinatal Mortality Data by health region, hospital of birth, hospital obstetrical volume, and residence of mother for individual birth weight groups must be continued and should be published every two years by the Ministry of Health.

18. The Collection of Data on Reproductive Morbidity by health region and by hospital should be established.

19. A pilot project on collection of reproductive morbidity data, using morbidity markers as outlined in Appendix G, should be established in one of the health regions of the Province.

20. There must be continuing educational efforts towards the universal use of the Ontario Antenatal Record forms in the province.

21. Acquisition and training of personnel for perinatal transport in Northern Ontario should be made a high priority of the Ministry of Health.

22. The Committee strongly supports the inter regional transfer system which has been developed by the Ministry and linked to the perinatal bed registry for Ontario.

23. The number of tertiary neonatal beds must be increased from 1 per 1000 live births to 1.75 per 1000 live births in Ontario.

24. Funding for, and establishment of, co-ordinated educational programs for medical, nursing and paramedical personnel should be implemented to ensure quality results are obtained from the Provincial Perinatal Program.

. **NORTHERN ONTARIO:**

25. Immediate measures need to be taken by the Ministry of Health to train, recruit and sustain obstetrical, neonatal, perinatal and anaesthesia specialists in Northern Ontario, so that mothers and newborns will receive the same care as available in Southern Ontario.

26. The role of the nurse-midwife should be evaluated in view of the perinatal needs of expectant women in Northern areas.

27. Financial assistance or transportation must be provided to expectant mothers in isolated areas in order to facilitate early and regular prenatal care.

28. The Ministry of Health should support regionalized linkages between modified Level 3 Units and University Level 3 Units for both nursing and medical professionals.

29. The Ministry of Health should establish a Northern Transportation Study with community initiatives which would have as its goal the establishment of a shuttle service for prenatal care or education. An alternative might be the acquisition of community owned four wheel drive vehicles suitable for transportation under hazardous weather conditions.

. **HEALTH CARE PERSONNEL:**

30. The Ministry should develop a mechanism for compensation of obstetrical and pediatric perinatologists in the 4 modified Level 3 perinatal centres in Northern Ontario and the modified Level 3 centre in Windsor.

31. The Ministry must establish a two year fellowship position in obstetrical perinatalology for Canadian certified obstetricians in each of the tertiary care perinatal programs associated with University Health Sciences Centres.

32. The Ministry must establish a two year fellowship position in pediatric perinatology for Canadian certified pediatricians in each of the tertiary care perinatal programs associated with University Health Sciences Centres.

33. Until adequate numbers of Canadian trained medical graduates with expertise in perinatology are available, the Ministry of Health should facilitate immigration of appropriately qualified foreign trained medical graduates.

34. The Ministry of Health should encourage the Ministry of Colleges and Universities, through provision of funding, to support the initiatives already in place at McMaster and the University of Toronto towards development of Master's level nursing specialists in obstetric and pediatric perinatology.

35. The Ministry of Colleges and Universities should provide funding for the salary of a full-time nurse faculty member, qualified to teach perinatal nursing at the graduate level, at each university which mounts a specialty or sub-specialty program in these areas. This individual is essential as current faculty cannot concurrently teach courses and supervise clinical practice for the proposed numbers of both first and second year students.

36. In order to attract baccalaureate nurses to the perinatal specialty area, up to 8 scholarships equivalent in amount to the Ontario Graduate Scholarships should be made available per university per year to qualified applicants until such time that all Level 3 and modified Level 3 perinatal units in the province have reached their required quota of six clinical nurse specialists in the area of obstetrics, six in the area of neonatal perinatology, and one for educational outreach to referring hospitals.

37. In order to offer electives supportive to the perinatal nursing specialty, the Ministry of Colleges and Universities should provide the faculty or school offering the specialty or sub specialty, with funds to pay the related graduate departments to provide relevant elective courses such as embryology, neonatal pathology, clinical nutrition, etc.

38. The Ministry of Health should support, encourage and markedly expand the continuing education programs in perinatal nursing, offered in the Community Colleges with practical experience in Tertiary Care Perinatal Centres. It is necessary to dramatically increase the numbers of Expanded Role Nurses to permit adequate staffing in each of the four modified Level 3 Centres in Northern Ontario and for the eight Level 3 centres in Southern Ontario.

- **PROPOSED FRAMEWORK:**

39. The Minister of Health should re-establish an Advisory Committee on Reproductive Care with a membership that is broadly representative of health professionals, consumers and the geographic regions of the Province. The Minister should consider the following suggestions for new terms of reference for the reconstituted committee:

    - To develop an integrated program for the prevention of perinatal damage through coordination of public health, media, clinical and social services.
    - To advise the Minister on areas necessary for basic and clinical research in perinatal health.
    - To monitor the Provincial Perinatal Program and determine the needs for alteration of the designation of perinatal centres, at all levels of care, in the six health care regions.
    - To monitor and publish every 2 years, perinatal statistics that are available regarding mortality and morbidity.
    - To monitor the provincial perinatal plan with regard to referral patterns, transport, manpower availability and professional training.

40. The Ministry must re-establish a Regional Committee mechanism and should consider the following terms of reference:

    - To develop an integrated preventive program to promote decreased perinatal morbidity and mortality through coordination of public health, social services, nutrition and clinical services.
    - To coordinate, evaluate and monitor a regional plan for perinatal care with regard to facilities, personnel, referral patterns, transport and uniform record keeping, using the guidelines in the 1979 Report.
    - To collect and monitor statistics of perinatal mortality and morbidity in the region.

- To assess the need for regional educational programs and communications network.
- To assist the Committee in carrying out other identified perinatal activities on a regional basis.
- To submit an annual report on its activities to the Committee.

CHAPTER I

INTRODUCTION

I. BACKGROUND INFORMATION

The Province of Ontario has long placed a high priority on achieving excellence in the provision of total care to pregnant women, their unborn children and to their newborns during the first critical weeks of life. In 1979, the Advisory Committee on Reproductive Medical Care (henceforth known as the 1979 Report) made the recommendation to the Minister of Health that, in order to allow access to appropriate perinatal care, a comprehensive program of regionalization of perinatal services be adopted for the Province. In addition, the 1979 Report recommended that an Advisory Committee on Reproductive Care and six Regional Perinatal Advisory Committees be established. The role of these regional committees would be to develop and monitor regionalized perinatal care programs.

In 1983, the Minister of Health established an Advisory Committee on Reproductive Care (henceforth known as the Committee) and six Regional Perinatal Advisory Committees in the six health regions of the Province (Appendix A).

This report is submitted, in the expectation that its recommendations will be adopted by the Ministry of Health as evidence of the ongoing commitment to excellence in provision of care to pregnant women and their newborns in Ontario.

II. TERMS OF REFERENCE OF THE ADVISORY COMMITTEE ON REPRODUCTIVE CARE

- To develop an integrated program to decrease perinatal morbidity and mortality through coordination of public health (including nutrition), clinical and social services

- To assist in the implementation and evaluation of a provincial plan for perinatal care, with input from the Regional Perinatal Advisory Committees with regard to:

    - coordination of all levels of preventive and treatment services in perinatal care

    - referral patterns and transfer

    - manpower availability and training

- To promote, as appropriate, uniform record keeping through:

  - use of the antenatal form
  - implementation of a standard system of recording and analyzing perinatal statistics

- To assess the need for education and promotional programs in perinatal health
- To assess the need for basic and clinical research in the area of perinatal health.

III. MEMBERS OF THE ADVISORY COMMITTEE ON REPRODUCTIVE CARE

Dr. John Patrick, Chairman Obstetrical Perinatologist, St. Joseph's Hospital, London	South West Region
Dr. Jacqueline Chapman Nurse Educator, University of Toronto, Toronto	Central East Region
Dr. Helen Demshar (from April 1984) Medical Consultant, Ministry of Health, Toronto	
Dr. Geoffrey Dunkley Public Health Physician, Ottawa-Carleton Regional Health Unit	Eastern Region
Mrs. Kathy Goetz-Perry Obstetrical Nurse, Grey Bruce Regional Health Centre, Owen Sound	South West Region
Dr. Roch Khazen Public Health Physician, Ministry of Health, Toronto	
Mrs. Lorna Miller Public Health Nutritionist, Private Practice, Waterloo	Central West Region
Dr. John Milligan Obstetrical Perinatologist, Women's College Hospital, Ontario Medical Association, Toronto	
Mrs. Sheila Parrish (from December 1984) Obstetrical Nurse Manager, St. Joseph's Hospital, North Bay	North East Region
Mrs. Elaine Stefani Consumer Representative, Windsor	South West
Dr. Paul Swyer Neonatal Perinatologist, Hospital for Sick Children, Toronto	Central East Region
Mrs. Mary Lou Walker Public Health Nurse, Department of Public Health, City of Toronto	Central East,

Mrs. Diane Fuller (until December 1984) Attorney, Sudbury	North East Region
Dr. Kenneth Shonk (until April 1986) Family Physician, Kitchener	Central West Region
Mr. Ken McGeorge (until April 1984) Hospital Administrator, Kingston General Hospital, Kingston	Eastern Region
Ms. Sharon St. Clair (until April 1984) Child Care Worker, Kenora	North West Region
Mrs. Marlene Stivens (from April 1984 to April 1985) Public Health Nurse, Northwestern Health Unit, Kenora	North West Region

CHAPTER II

PREVENTIVE STRATEGIES: LIFESTYLE AND COMMUNITY CARE

I. BACKGROUND INFORMATION

It is well recognized that over 90% of adverse neonatal outcomes are related to three broad categories of causes(1):

- low birthweight and prematurity
- congenital anomalies
- complications of labour and delivery.

There are three basic strategies to prevent these adverse outcomes(2):

- Tertiary prevention: mitigating the effect of the disease once it has occurred through treatment and rehabilitation. This is primarily achieved through hospital perinatal services.
- Secondary prevention: identifying problems at an early stage when treatment is more effective. This is the primary thrust of current prenatal care with screening for hypertension, diabetes, poor fetal growth, early recognition of pre-term labour, etc. As well, it includes monitoring strategies during labour and delivery.
- Primary prevention: preventing the problem from occurring by intervening in the causally related lifestyle or life situation. Examples include cessation of smoking and of drinking alcohol during pregnancy.

II. DISCUSSION

The dramatic improvements in perinatal mortality over the last 15 years have been due, mainly, to tertiary prevention by perinatal hospital services. Despite improvements in perinatal mortality and morbidity, Ontario has experienced only small declines in the incidence of congenital anomalies and of low birthweight (Figures 1 and 2).

FIGURE I

BIRTHWEIGHT RATIO (%) UNDER 2500g

1975 - 1985

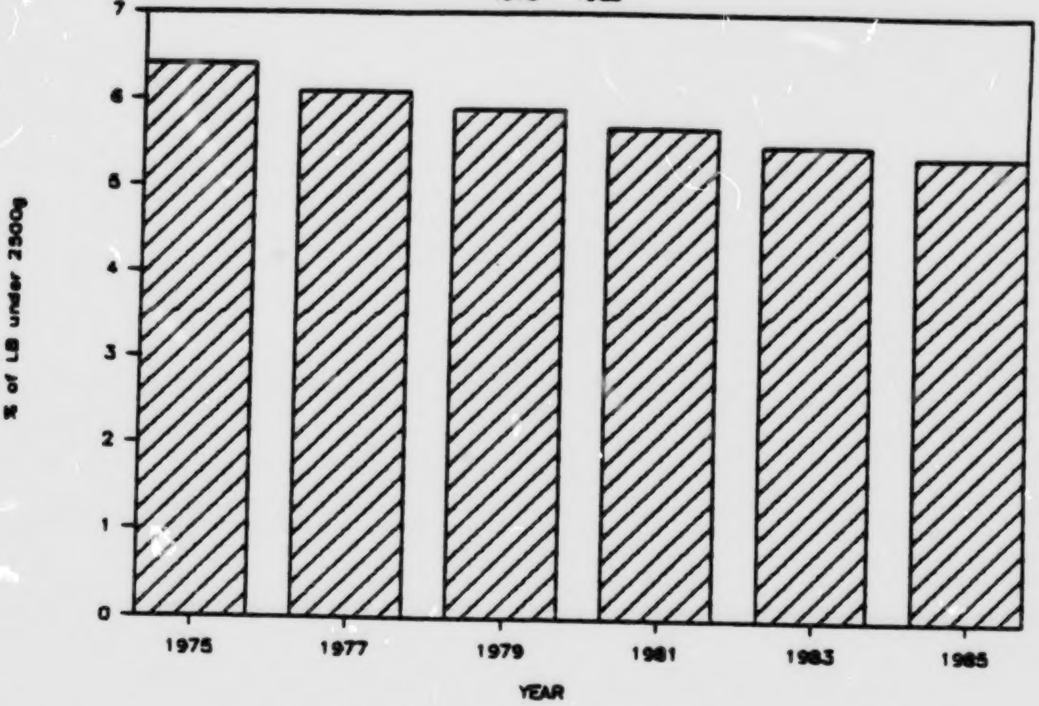
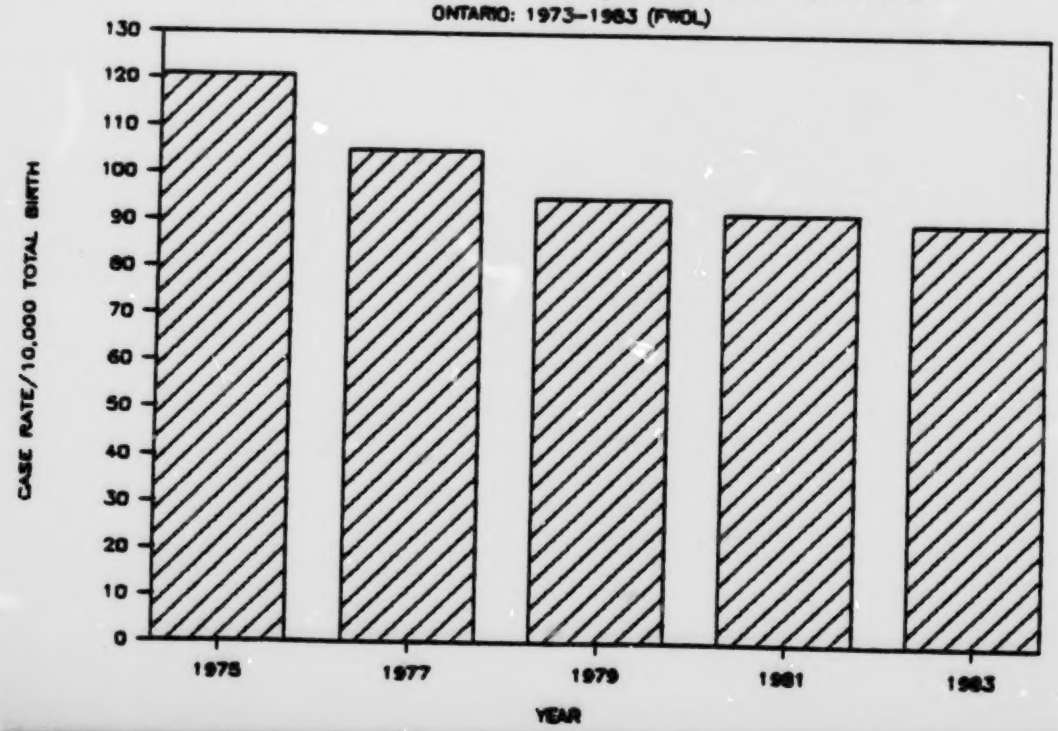


FIGURE II

ANOMALY CASE RATE / 10,000 BIRTHS

ONTARIO: 1973–1983 (FWOL)



Low birthweight and prematurity are the more common potentially preventable associations with poor outcomes (1,3). Lifestyle factors such as cigarette smoking and alcohol use are important contributors. Socio-economic factors such as poverty, single marital status and teenage pregnancies are also strongly linked (4,5,6). However, the exact mechanism through which these factors operate to cause prematurity and low birth weight is not well understood.

Poor nutritional status before pregnancy and inadequate nutritional intake during pregnancy may also have a negative impact on fetal weight gain, thereby increasing the risk of low birth weight. Nutritional status may also be linked to the above risk factors i.e. alcohol use, poverty and adolescence.

In the case of congenital anomalies, the causation of the great majority is not sufficiently understood to develop an effective primary prevention intervention (7,8). Therefore, secondary prevention through amniocentesis and other screening procedures, followed by termination of pregnancy where acceptable and feasible, must remain the mainstay of intervention. Of the remainder, some causes such as rubella infection and teratogenic drugs are understood and can be prevented. Some important causes, notably alcohol ingestion and congenital toxoplasmosis, are well understood but the preventive strategy of education and behaviour change is often not effectively carried out (9,10).

Primary prevention of the major causes of morbidity and mortality therefore requires either a change in lifestyle or better adaptation to adverse socio-economic circumstances. This involves understanding and appropriate intervention in the complex interplay of social, economic and behavioural factors which have been neither considered, nor effectively addressed, by the traditional system of neonatal care. Physicians, in general, do not have experience or skills in these areas. This implies that creating an effective preventive mechanism will involve a considerable re-orientation of the current system both in terms of attitudes and organization. An effective solution will need to take into account a number of factors:

- there are a variety of professional and non-professional service providers
- there are questions about the effectiveness of current and proposed approaches

- the issues of ideology and resistance to change, by both professionals and consumers, must be addressed
- there exist barriers to communication and referrals within the current system, leading to fragmentation and under-utilization of needed services
- there is a need for new approaches and significant funding increases, due to the lack of emphasis on this area in the past
- individuals at risk, tend to have several risk factors, and tend to be resistant to traditional interventions.

It would appear to us, while achievement of this re-orientation will not be easy, progress can be made in a number of areas using multi-disciplinary approaches. Appreciation by service providers of the value of approaches, other than their own, will be important. Further, proven effective services can bring about an evolutionary change in attitudes and in referral patterns. The increasing acceptance of prenatal classes by both physicians and consumers over the past 20 years is a valuable model for the integration of preventive and community components into prenatal care.

III. REGIONAL COMMITTEES

Most Regional Perinatal Advisory Committees addressed the issue of primary prevention in their final reports. Several themes recur. These include:

- the need for better cooperation, coordination and communication among physicians, health units and other service providers
- the need to lower barriers to effective provision of these services. The most important are geographic, socio-cultural and economic
- the need for prenatal education to be given earlier in pregnancy, and to cater specifically to disadvantaged and high risk groups.

IV. IMPLEMENTATION

In the past, there was a misconception that primary prevention, while laudable in theory, was not possible in practice. There have been a number of recent scientific and practical developments which indicate that it is now possible to mount an effective primary prevention program in Ontario:

- health units have a mandate under the Health Protection and Promotion Act to identify and appropriately refer high risk pregnant women (11).
- effective behavioural tools are being developed to alter and maintain lifestyle changes during pregnancy (12,13,14).
- media and communication strategies can be exploited to promote positive behavioural change (15,16,17,18).
- preliminary evidence suggests the effectiveness of coordinated, multidisciplinary interventions, in teenage (19) and socio-economically disadvantaged pregnancies (20).
- there is increasing acceptance of prenatal class attendance earlier in pregnancy, where intervention and behavioural change can influence pregnancy outcome (21).
- new epidemiologic information in areas such as the impact of moderate drinking and passive smoking (22,23) on the fetus needs to be evaluated and disseminated.
- the likely advent of midwives in the near future (24) will have a major impact on preventive and community services. Indeed, although most of the controversy has focused on the role of the midwife in labour and delivery, it is in the area of prenatal care that the midwife has the most potential to influence reproductive outcome.

V. A PRIMARY PREVENTION STRATEGY FOR ONTARIO

The Committee strongly recommends that there is a need for a multi-disciplinary, expert committee to review the scientific evidence and practical constraints and make recommendations on priorities for implementation and research. The Committee has identified a number of issues which would need to be considered by such a group (Appendix B). Once a rationale has been developed at the Provincial level, specifics of implementation would be developed at a regional level. Smoking, alcohol, nutrition, teenage pregnancy and early recognition of premature labour are all areas where dissemination of scientific advances, better resources and improved coordination of services would lead to better pregnancy outcomes.

This two stage model has been highly successful in the recently completed exercise of the regionalization of hospital based perinatal services. (See Chapter IV).

The effective primary prevention interventions and the issues to consider will require a multi-disciplinary approach. Members of the committee would need to critically review scientific evidence. They would need to plan different approaches and have a sense of the practicalities in applying prenatal care. The suggested committee would ideally be composed of members from the following groups:

- epidemiologist
- public health representative
- consumer
- educator
- physician delivering community obstetrical care
- media/communications expert
- nurse involved in prenatal care/education
- academic perinatologist

Many disciplines are involved in a comprehensive primary preventive approach to perinatal morbidity and mortality. Their input, plus that of the consumer, must be considered in the development of any workable model. The following groups should have input to committee deliberations:

obstetrical nurse
prenatal educator
midwife
nutritionist
consumer
school health educator
social worker
legislative/social policy expert
epidemiologist
public health physician
psychologist
obstetrician
family practitioner
sociologist
neonatologist
fetal physiologist
public health nurse

RECOMMENDATIONS

1. The Ministry of Health should undertake to increase the effectiveness of primary prevention in the reproductive care system.

2. Responsibility for ensuring a primary prevention strategy for reproductive health care in Ontario should become a top priority in the terms of reference for the next Minister's Advisory Committee on Reproductive Care. (Rec. 39).

3. A multi-disciplinary expert committee should be struck to review scientific evidence and develop a provincial preventive plan with priorities and strategies for research and implementation.

4. The Provincial primary prevention plan should then be implemented regionally following the model of the 1979 Report. (Rec. 40).

5. Cigarette smokers, moderate alcohol consumers and teenagers are risk groups which should be targeted for effective primary prevention strategies.

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CHAPTER III

PRIMARY CARE CHALLENGES: CONTINUITY AND RESPONSIBILITY

I. CONTINUITY OF CARE

The Committee recognized that growing concerns exist in Ontario regarding the lack of continuity of care of pregnant women. This has resulted from fragmentation of services, dissatisfaction with care received and inefficient use of antenatal services. It is also notable that there is an increasing trend in the number of family practitioners opting out of obstetrical care.

A discussion paper entitled "Strategy for Dealing With Changing Trends in the Delivery of Reproductive Care" (Appendix C) was sent to the Chairpersons of the Regional Perinatal Advisory Committees requesting comments and suggestions. The Ontario Medical Association discussion paper "Directions in Health Care Issues Related to Childbirth" (Appendix D) was also forwarded to the Regional Committees for review and comment.

The Committee discussed the issues raised in the two discussion papers in some detail and considered feedback from the Regional Committees on these issues. There is no doubt that continuity of care is an important problem which needs to be addressed in delivery of primary health care to women. This problem has occurred because of the increasing trend of family doctors to opt out of total obstetrical care and, in addition, a move to shared care on the part of family doctors and obstetricians. As a result of these concerns, the Committee decided to invite representatives of selected groups to explain their perspectives on issues raised in the two discussion papers.

A. The Role of the Family Physician in Obstetrics

A discussion was held with Dr. Rachel Edney, President of the College of Family Practice and Dr. Stan Lofsky, representative of the Committee of the Ontario Medical Association on Family Practice. These two physicians agreed that family physicians are removing themselves from the delivery of pregnant women and/or total obstetrical care. They identified several reasons for this trend. These included:

- lifestyle
- increased malpractice insurance fees
- hospital attitudes to family doctors practising obstetrics
- inadequate training and role models during medical school and family practice residency
- inadequate numbers of deliveries during training
- a lack of financial incentive due to obstetrical fee structures

Discussions centered on ways of reversing the trend. Both Drs. Edney and Lofsky agreed that the family doctor should still be considered the key professional in obstetrical care. Reversing the current trend will require several changes. These would include altering the focus of medical school curricula, improving the exposure to obstetrics in family practice training programs and finally, making it clear to family physicians that there are significant benefits gained in practice profiles by continuing to deliver total obstetrical care.

B. Registered Nurses Association of Ontario (RNAO)

The Committee met with Ms. Eleanor Wilson, who stated that the RNAO was concerned regarding the continuity of care of pregnant women and had considered the possibility that reproductive care nurses or nurse midwives might play a role in improving the situation. However, she recognized that problems with patient dissatisfaction may continue to exist, because of the 40 hour work week of nursing professionals. The RNAO was attempting to develop models of reproductive care nurses that could be used in hospital-based care, physicians' offices and public health departments. The RNAO have not addressed the issue of cost of a reproductive care nurse, and did not favour the concept of an independent nursing-practitioner. They are committed to the team approach to health care.

Ms. Wilson discussed the views of the RNAO towards midwifery. They believe that nurse-midwifery should be licensed under the College of Nurses and that education, training, standards and costs need to be addressed by the College of Nurses. Both the RNAO and the College of Nurses support hospital deliveries only and not home births.

C. Association of Ontario Midwives

The deliberations of the Committee regarding continuity of care naturally led to the issue of midwifery. Ms. Rena Porteous, President of the Association of Ontario Midwives, agread with the committee that continuity of care is a major concern in the Province. She proposed midwifery as a solution to the problem. Her model was one of solo practitioners, or practitioners in teams of two, on twenty-four hour call. These practitioners would be responsible for the care of women before, during and after birth. Midwifery would also play an important role in isolated areas in Northern Ontario. In these areas, local people could be trained as midwives and return to their own communities following training.

Ms. Porteous made the point that midwifery practice would be financed by direct payment or through budgets of birthing centers. Her association had not yet addressed the issue of malpractice insurance.

The Committee remained actively interested in the possible role of midwives in the delivery of perinatal services to pregnant women in Ontario. We met on two occasions with the Task Force on Midwifery, established by the Minister of Health. Numerous issues were discussed with the Task Force and important concerns included the following:

- the importance of fully integrating midwives into the existing perinatal health care system
- whether evidence exists that midwives would improve the continuity of care to pregnant women
- whether midwifery could pass a cost-benefit analysis
- the problem of midwifery education and training is important. Where can midwifery schools function (i.e. to obtain sufficient obstetrical experience) and who will fund the faculties and necessary facilities?
- the need for credible educational standards and a licensing body to ensure continuing standards of practice
- feasibility of obtaining malpractice insurance for independent-practicing midwives
- financing of midwives in our health care system

- the role of midwives in preventive strategies for reduction of low birth weight.

D. Summary

After meeting with representatives of family physicians, nurses and midwives, the Committee continued to believe that the lack of continuity of care to pregnant women is a major concern in the Province. Although this issue is complex, the Committee made three recommendations which may be important in addressing consumer concern.

RECOMMENDATIONS

6. One member of the reproductive health care team should assume responsibility for ensuring continuity of care for pregnant women.

7. The multiple health professionals providing reproductive care should always use a team approach.

8. A copy of the Ontario Antenatal Record Forms should be made available to individual pregnant women so that they may carry them at all times, in order to facilitate continuity of care.

II. CONTINUITY OF CARE FOR THE INFANT: CHILD HEALTH RECORD

The continuity of care of newborns and children was also addressed by the Committee. A child health record booklet, developed over a seven year period by the Federal Department of Health and Welfare, was reviewed by the Committee. The Child Health Record was developed primarily for the use of families of the Department of External Affairs, to facilitate care of their children during postings to foreign countries. Documentation of immunization and of growth and development, permitted frequent moves to different countries without sacrificing essential care to children. The Child Health Record had been adopted by the Provinces of Nova Scotia and Prince Edward Island as part of the provision of newborn and pediatric care.

The Committee forwarded the document to the Ontario Medical Association and the Regional Perinatal Advisory Committees for comment. These groups believed that the Child Health Record was lengthy and detailed to the point that compliance on the part of parents and physicians might be hindered. In addition, universal use of the document would be expensive and require over 100,000 copies per year. Finally, the Child Health Record did not include morbidity markers of perinatal outcome which might be important in establishing optimal care for children.

In view of the concerns, the Committee notified the Ministry that it could not support the current child health record developed by the federal government for care of children in Ontario. It was recommended that a more practical document be considered for universal use. One suggestion was to consider the document currently being used in the Province of Quebec.

It was recommended that before any document was circulated in the Province that evaluation of its implementation, use and effectiveness in practice be carried out. It is also clear that the Ontario Medical Association, the College of Family Practice, the Canadian Pediatric Society and the Association of Medical Officers of Health will need to be involved in discussions of any child health record suitable for Ontario. The Committee was later pleased to learn that the Committee on Child Welfare of the Ontario Medical Association is developing a child health record, and is in the process of field testing this document.

RECOMMENDATION

9. A practical Child Health Record needs to be adopted for province-wide use in Ontario.

III. CONCLUSION

There have been dramatic improvements in maternal and perinatal mortality and morbidity in Ontario over the past few years. Progress is continuing in this area but it is essential to begin to address the psychological aspects of reproductive care of pregnant women. In order to maintain and improve positive perinatal outcomes, problems such as fragmentation of care, dissatisfaction with care, and inefficient use of services need to be addressed before they escalate.

The Committee believes it is important for health professionals to understand the widespread concern of consumers with the lack of continuity of perinatal care. Every reproductive health care setting needs to address this issue so that one representative of the team assumes responsibility for the continuity of care.

CHAPTER IV

IMPLEMENTATION OF REGIONALIZED PERINATAL SERVICES

I. BACKGROUND INFORMATION

The 1979 Report to the Minister of Health advocated a system of regionalization of perinatal services. This concept was based on the necessity to ensure the widest accessibility, throughout the Province, to perinatal resources which are necessarily restricted, because of the cost of special facilities and the limited availability of personnel with the necessary expertise. A system of regionalization would guarantee access, by all pregnant patients and their infants, to a level of care appropriate to their level of risk.

The 1979 Report consequently recommended a categorization of hospital facilities into three levels to manage perinatal care. The categories were: Level 1 for pregnancies with no identifiable risks; Level 2 for moderate risk; and Level 3 for high risk pregnancies (Appendix E).

II. RATIONALIZATION OF HOSPITAL FACILITIES IN THE SIX HEALTH REGIONS OF ONTARIO

A. Level 3 Perinatal Units

The 1979 Report estimated that combined Level 3 Obstetrical and Neonatal facilities are required for approximately 3% of the population. These pregnant women and their infants need the most advanced and sophisticated care because of high level maternal and/or neonatal risks (Table I).

The Southwest, Central West and Central Eastern regions of the province have all recognized and reaffirmed their Level 3 operations in Health Scienes Centres.

TABLE: I

RECOGNIZED LEVEL III PERINATAL CENTRES

Level III:

- London: St. Joseph's Hospital
- Toronto: Mt. Sinai Hospital
  Women's College Hospital
- Hamilton: McMaster Division, Chedoke-McMaster Hospitals
- Kingston: Kingston General Hospital

Level III Modified

- Windsor: Salvation Army Grace Hospital
- North Bay: St. Joseph's Hospital
- Sudbury: Sudbury General Hospital
- Sault Ste Marie: Sault Ste Marie General Hospital
- Thunder Bay: Port Arthur General Hospital

RECOGNIZED NEONATAL INTENSIVE CARE CENTRES

- Toronto: Hospital for Sick Children
- Ottawa: Children's Hospital for Eastern Ontario

1. THE SOUTHWEST REGION had developed a tertiary perinatal facility at St. Josephs Hospital, London, and has formed a new modified Level 3 facility at the Salvation Army Grace Hospital, Windsor. The Windsor unit fills a significant gap in Level 3 coverage for this area of the Province, which formerly necessitated transfer of some women and infants to Detroit.

2. THE CENTRAL WEST REGION has a tertiary perinatal unit at McMaster University Medical Centre.

3. THE CENTRAL EAST REGION has expanded the tertiary perinatal facility at Women's College Hospital to 48 beds and opened a perinatal unit at Mount Sinai Hospital which will be expanded to its full capacity of 30 beds in 1987.

   The University of Toronto formed a Perinatal Complex so that the functioning of the activities in the Hospital for Sick Children (Tertiary Neonatal Intensive Care), perinatal facilities at Mount Sinai Hospital, Women's College Hospital, and the Genetics and Maternal Disease Program at Toronto General Hospital could function as a single integrated resource for the region.

4. THE EASTERN REGION, because of geographic factors and referral patterns, was assigned two Level 3 units, one in Ottawa, and one in Kingston. The tertiary perinatal facility in Kingston is located at the Kingston General Hospital

   The location of the unit in Ottawa is still undecided. An internal group appointed by the Dean of the Faculty of Medicine at the University of Ottawa recommended that the Ottawa Level 3 unit be based in the Ottawa General/Children's Hospital of Eastern Ontario/Health Sciences Complex. This recommendation was subsequently approved by the Eastern Regional Perinatal Committee and sent forward by the Committee to the Ministry. However, since the recommendation was made, several communications have been received suggesting that no consensus has yet been achieved in Ottawa. The Committee considers it important that a single Level 3 perinatal unit be recognized in Ottawa and that only one unit is justifiable because of economic and patient population factors.

RECOMMENDATION

10. One Level 3 perinatal unit is required in Ottawa. If the Eastern Region Perinatal Committee recommendation, which has been passed on to the Ministry, is not acceptable locally, an external committee should be constituted to identify, in an objective and knowledgeable fashion, a single Level 3 Perinatal Unit in Ottawa.

5. The NORTH EAST AND NORTH WEST REGIONS, have unique problems such as severe weather conditions that interfere with travel, and great distances from tertiary units in the South. Because of these factors, it was necessary to establish modified Level 3 units in selected Northern hospitals. The North East and North West Regional Perinatal Committees made recommendations, subsequently endorsed by the Committee.

In the North East it was recommended that modified Level 3 units be established at the Sault Ste Marie General Hospital, the Sudbury General Hospital and the St. Joseph's Hospital in North Bay.

In the North West, it was recommended that a modified Level 3 unit be established at Port Arthur General Hospital in Thunder Bay.

Significant difficulties are being encountered in recruiting suitably trained medical and nursing staff for all tertiary units, but especially for those in the North. Budgeting and administrative problems relating to organization and functioning of such units is also interfering with their development (see Chapter V - Northern Ontario: Special Considerations and Concerns).

RECOMMENDATION

11. Program and financing mechanisms must be established to support the development of medical and nursing staff which will ensure functioning of modified Level 3 units in Northern Ontario and tertiary units in Southern Ontario.

B. Level 2 Perinatal Units

The 1979 Report estimated that Level 2 perinatal units will serve approximately 12% of the obstetrical and neonatal population with moderate degrees of risk. Identification of Level 2 perinatal units was an important issue for the six regional perinatal committees. All regional committees recognized that categorization of Level 2 perinatal units was a major priority which would ensure that Level 3 units could function efficiently and not become overwhelmed by inappropriate patient referral. The Central East Perinatal Committee developed a protocol which described Level 2 units. They then sent out a questionnaire to all potential Level 2 hospitals in their region. Similar procedures were carried out in the other health care regions.

The Southern Regions of Ontario recognized that a modification of descriptive protocols is required for geographic reasons or for differing volumes of patient activity, especially in more remote regions.

1. Designation of Level 2 Perinatal Units

In the South, hospitals were asked whether they wished to be Level 2 centres. Each hospital that seemed to qualify underwent a site visit by a multi-disciplinary team (obstetricians, pediatricians, nurses and anaesthetists). Final regional recommendations were then based on analysis of both the questionnaire and the impression of the site visitors. Following this, the regional perinatal committees made specific recommendations for Level 2 recognition and accreditation in their respective regions. These were received, amended and are found in Table II.

2. Rationalization of Level 2 Hospitals

In some regions, the number of hospitals wishing to have Level 2 recognition exceeded regional requirements based on the expected number of Level 2 patients in the area. This was particularly true in the Central West region. The Committee has, therefore, not accepted all the recommendations for Level 2 status made by some of the regional committees.

Finally, all the Regional Perinatal Committees found the process of Level 2 site visits was an extremely valuable, informative and educational activity. All suggested that site visits by Regional Perinatal Committees would be of equal value for Level 1 perinatal units.

C. Level 1 Perinatal Units

The Eastern Regional Report made the important suggestion that definitive descriptive standards for family centered Level 1 units (85% of pregnancies) be developed in the same way as has been accomplished for Level 2 units. There is room for further rationalization of Level 1 perinatal facilities, particularly in urban areas in the Southern regions, and this could be a future task for regional perinatal committees.

TABLE: II

RECOMMENDED LEVEL II PERINATAL CENTRES

1. **EASTERN REGION** (1)
   - Ottawa Civic Hospital, Ottawa
2. **CENTRAL EAST REGION (9)**
   - Toronto East General Hospital, Toronto
   - Scarborough Centenary Hospital, Toronto
   - North York General Hospital, North York
   - St. Joseph's Hospital, Toronto*
   - York County Hospital, Newmarket
   - Peel Memorial Hospital, Brampton
   - Oshawa General Hospital, Oshawa
   - Peterborough Civic Hospital, Peterborough
   - Soldiers' Memorial Hospital, Orillia
3. **CENTRAL WEST REGION (5)**
   - One hospital in Hamilton (to be named)
   - One hospital for Welland, Niagara and St. Catharines areas (to be named)
   - Kitchener - Waterloo Hospital, Kitchener
   - Brantford General Hospital, Brantford
   - Oakville - Trafalgar Memorial Hospital, Oakville
4. **SOUTHWEST REGION (4)**
   - Public General Hospital, Chatham
   - St. Joseph's Hospital, Sarnia
   - The Grey Bruce Regional Health Centre, Owen Sound
   - Victoria Hospital, London
5. **NORTHEAST REGION (1)**
   - St. Mary's General Hospital, Timmins
6. **NORTHWEST REGION** None

(* submitted as an addendum after the report was received)

D. Level 0 Perinatal Units

The North Eastern Region identified a special problem which pertains to isolated low volume units in the North. Some Northern units would not have received Level 1 status in the South due to lack of facilities for emergency cesarean section, blood bank and low obstetrical volume. However, from a practical point of view, non-recognition and/or closure of these units would deprive local populations of any facilities, even for an emergency delivery.

The North Eastern Region Perinatal Committee recommended that such units receive a Level "0" designation and be kept operational as Emergency Obstetric Centres as opposed to centres that would perform planned deliveries. At these Level "0" units, a plan should be developed which would include special transportation facilities to bring mothers and babies, before or after delivery, to the nearest appropriate Level 1, 2, or 3 centre, if necessary.

A potential option might be to provide transportation of an emergency team to Level 0 facilities in order to conduct a safe delivery. At the present time there are major difficulties in attracting qualified staff and maintaining expertise of the present staff. There are also ethical, quality assurance, medical-legal and economic implications in keeping such low volume units open. Nevertheless, the North East Region recommended closure of some units in this category. Similar problems were evident in the North West Region and similar solutions would be appropriate.

RECOMMENDATIONS

12. The Ministry must develop programs to ensure availability of adequately trained medical and nursing personnel for staffing of level 1, 2 and 3 perinatal centres. Without such a personnel, the entire system will collapse. (See Chapter VI)

13. The Ministry must recognize and financially support recommended Level 2 units (see Table II) to ensure that the requirements of Level 2 patients can be met and also to ensure that Level 3 units are able to refer convalescent patients, in order that the restricted resources remain available for Level 3 patients.

14. The number of formally recognized Level 2 units, and their beds, in each region should be appropriate to the number of patients requiring Level 2 care in that region unless there are overriding geographic considerations.

15. Descriptive standards for Level 1 perinatal units, which emphasize family centered personalized care, must be developed for all regions of the Province and a mechanism for site visiting should be instituted in all regions in order to improve the standards of care in Level 1 units.

16. A coordinating regional mechanism for monitoring the total Provincial Reproductive Care Program is essential to ensure proper distribution and use of facilities, standards, data collection and quality control in all regions. (See Chapter VII)

III. IMPORTANT ISSUES FOR SUPPORT OF REGIONALIZED PERINATAL CARE IN ONTARIO

A. Provincial and Regional Perinatal Data Collection

The 1979 Report emphasized the importance of obtaining perinatal mortality data, both for the province as a whole and for individual regions within the Province. The Committee has worked closely with personnel from the Ministry of Health in the development of perinatal mortality data for the Province by health region, hospital of birth, hospital obstetrical volume, residence of mother, and birth weight. Selected Ontario Perinatal Data are found in Appendix F. A detailed Ontario Perinatal Mortality Report will be published by the Committee later this year.

RECOMMENDATION

17. The collection of Perinatal Mortality Data by health region, hospital of birth, hospital obstetrical volume, and residence of mother for individual birth weight groups must be continued and should be published every two years by the Ministry of Health.

B. Provincial and Regional Perinatal Morbidity Data

There remain significant problems in reproductive care in Ontario. Unfortunately, there are few reliable province-wide statistics available on most postnatal morbidity, especially related to neuro-developmentally handicapped children. As a result, the Committee established a sub-committee which included all neonatologists in charge of long term follow-up programs from Health Sciences Centres to make recommendations relative to the recognition of neonatal morbidity, its classification and statistical evaluation with special emphasis on long term developmental handicap (Appendix G). This sub committee defined morbidity markers which would be noted at the time of discharge from hospital. It recommended that these morbidity markers be used in morbidity review and audit at the local hospital level. These markers could also serve as criteria for public health departments to identify infants requiring special attention, follow-up and rehabilitation.

It is unfortunate that, at present, data on numbers of patients and types of handicapped children is not available in the Province of Ontario. Services provided to handicapped children have significant overlap and are coordinationed by different agencies. Therefore, the sub-committee also recommended a pilot project be supported by the Ministry in one of the Regions of the Province. This project would evaluate the morbidity markers in a combination hospital/community program to determine their value and effectiveness. The eventual aim should be to develop a coordinated follow-up and rehabilitation service for perinatally determined handicap.

RECOMMENDATIONS

18. The Collection of Data on Reproductive Morbidity by health region and by hospital should be established.

19. A pilot project on collection of reproductive morbidity data, using morbidity markers as outlined in Appendix G, should be established in one of the health regions of the Province.

C. Ontario Antenatal Record Forms

The Hospital for Sick Children Foundation, at the request of the Reproductive Care Committee (formerly, Perinatal Advisory Committee) of the Ontario Medical Association, funded the development of antenatal records for use in Ontario. The Ontario Medical Association recommended the use of the antenatal records 1 and 2 by all physicians providing obstetrical care. Use of these forms enables physicians to establish the degree of risk of individual pregnant women and, where appropriate, suggest consultations and arrangements for delivery. The Ministry of Health has now taken over the production and distribution of the forms on a province-wide basis. Because of a provincial educational program maintained by the Ontario Medical Association and Level 3 perinatal centres, the Ontario Antenatal Records have become widely, although not universally used and accepted. Some of the Regional Perinatal Committees recommended that use of these forms be mandatory in Ontario. However, the Committee prefers the persuasive and educational approach.

RECOMMENDATION

20. There must be continuing educational efforts towards the universal use of the Ontario Antenatal Record forms in the province.

D. Transportation Services

In 1978, a sub-committee of the Advisory Committee on Reproductive Medical Care submitted a special report on the need for improved transport services for pregnant women and neonates in Ontario. Since that time, the Land and Air Ambulance Service has been improved and both helicopter and fixed wing aircraft services have been expanded in Toronto, London and the North. These new transport facilities have been important factors in the increasing numbers of high risk pregnancies and newborns referred to Level 3 Perinatal Centres.

All Level 3 centres now maintain a 24 hour transport telephone "hotline" through which transport of either high risk mothers or neonates can be facilitated. The Committee worked closely with members of the Ministry and a new plan for efficient transport has been developed. In 1986, a Provincial Perinatal Bed Registry was developed through the Ministry's Central Air Ambulance Communications Centre. This has allowed more efficient inter regional transport when required due to lack of resources in any given region. The bed registry operator also simultaneously arranges the transport vehicle once appropriate medical linkage and consultation has been carried out and the bed in a particular facility has been approved for the patient's use (Appendix H).

Guidelines for the transport of high risk women were developed by the Ontario Medical Association Reproductive Care Committee. Guidelines for neonatal transport were developed by the Hospital for Sick Children neonatal transport team. Both guidelines have been incorporated into the Ministry of Health Inter Hospital Transport Guidelines (Appendices I and J). These sophisticated transfer systems are still in the process of being introduced in Northern Ontario and in that region trained personnel to effect transfer are still lacking.

RECOMMENDATIONS

21. Acquisition and training of personnel for perinatal transport in Northern Ontario should be made a high priority of the Ministry of Health.

22. The Committee strongly supports the inter regional transfer system which has been developed by the Ministry and linked to the perinatal bed registry for Ontario.

E. Perinatal Staffing Problems

All university Level 3 perinatal centres are experiencing a reduction in the number of house staff which will intensify over the next few years. Since house staff in the past have provided a considerable amount of service while undergoing post-graduate training, this gap will need to be filled either by an increase in trained staff or an expanded role for nursing in perinatal units and neonatal intensive care units. There are, as well, too few properly trained obstetricians and pediatricians to adequately staff Level 2 and modified Level 3 centres, especially in the North. A shortage of general practitioners providing obstetrical services is becoming serious, especially outside of major centres in all the health care regions of the Province. There are an increasing number of communities in which both obstetric and anaesthesia care are no longer available on a 24 hour basis. (See Chapter VI)

In Northern Ontario, establishment of modified Level 3 units may be prevented because of a major shortage of pediatric and obstetrical perinatologists. (See Chapter V).

F. Bed and Staffing Requirements for Level 3 Perinatal Units

The 1979 Report recommended one tertiary perinatal bed for every 1000 live births. These projections were based on data from the mid 70's. Since that time there has been considerable success in life support and the prevention of mortality in very low birthweight infants, especially below 1000 grams. As a result, there is presently a longer average stay for surviving infants and the requirement for beds has increased considerably.

During the past year in Ontario, many tertiary perinatal care units have been closed due to full occupancy of their beds and recently, patients had to be transferred to other Provinces or out of country because of the fact that all tertiary units were closed in the Province. Reports have suggested that it is now appropriate to make available 1.75 beds with appropriate staffing for each 1000 live births as the minimum required for Level 3 neonatal facilities. As a result, Level 3 units will need to have an increased capacity, most notably in the Central West, South West, and Central East Region.

Further support for the estimate of a need of 1.75 tertiary neonatal intensive care beds per 1000 live births is found in the recent document entitled "Perinatal Intensive Care Units in a Perinatal Care Network" published by the Health Services Directorate, Health Services and Promotion Branch under the authority of the federal Minister of National Health and Welfare in 1986.(1) This document has outlined a number of beds required for tertiary and Level 2 Perinatal Centres and has made the point that the increased survival of very low birth weight newborns based on current survival rates and duration of hospital stay requires 1.75 tertiary neonatal beds per 1000 births.

RECOMMENDATION

23. The number of tertiary neonatal beds must be increased from 1 per 1000 live births to 1.75 per 1000 live births in Ontario.

G. Education

The Southwest and Eastern regions, and to some extent the Central East region have mounted organized outreach educational programs. These programs are based in tertiary perinatal care centres with the support of their universities. All existing programs are considered to be extremely important. Outreach programs would be especially important in Northern Ontario. However, all programs are currently hampered by lack of personnel, time, and in most cases, no dedicated budget to carry out this activity. Perinatal outreach educational programs apply to the activities of medical, nursing and paramedical personnel. The issue of public education is recognized to be of major importance and is dealt with in Chapter II of this report.

RECOMMENDATION

24. Funding for, and establishment of, co-ordinated educational programs for medical, nursing and paramedical personnel should be implemented to ensure quality results are obtained from the Provincial Perinatal Program.

References

1. Perinatal Intensive Care Units in a Perinatal Care Network Guidelines. Report of the Sub-committee on Institutional Program Guidelines. Health Services Directorate, Health Services and Promotion Branch, National Health and Welfare, 1986.

CHAPTER V

NORTHERN ONTARIO: SPECIAL CONSIDERATIONS AND CONCERNS

I. BACKGROUND INFORMATION

Reports from the North Eastern and North Western Perinatal Advisory Committees indicated that both regions share common problems that are unique in the Province of Ontario. The process of determining levels of perinatal care in the North included an assessment of manpower and educational needs as well as accessibility to perinatal services. The Northeastern report brought attention to a number of serious concerns related to the provision of quality care and services in this part of the Province. It is recommended that this information be used by the Ministry in its endeavours to ensure quality of care for all pregnant women and newborns in the Province.

II. MANPOWER NEEDS

A. Modified Level 3 Perinatal Units

Hospitals in Thunder Bay, Sault Ste Marie, Sudbury and North Bay were designated as modified Level 3 centres (Chapter III-Table I). These larger communities are reasonably well serviced by family physicians but all have reported that they are experiencing, or will be experiencing in the near future, shortages of specialists in obstetrics, neonatology, perinatology and anaesthesia. The lack of medical specialists and sub specialists, as well as perinatal nursing personnel, places the ability of these modified Level 3 centres to develop and maintain their level of service in definite jeopardy.

Workload for existing obstetricians and pediatricians has continued to increase as more general practitioners withdraw from obstetrical practice. As a result their lifestyle and health are compromised. Several specialists are close to retirement, and the prospect of replacing these persons in the next 5-10 years appears dismal, unless measures are put in place to train more specialists, and attract them to the North.

Additionally, mechanisms of compensation for specialists in the North such as salaried positions or guaranteed income will be required because of the low obstetrical/perinatal population. (See Chapter VI, Recommendation 28).

B. Anaesthesia Services

At the time of this report, a crisis is developing because of a shortage of anaesthetists. The ability of obstetrical units to offer or develop an epidural service for women in labour has decreased. For example, with the exception of an epidural for planned cesarean sections, North Bay has recently withdrawn its anaesthesia service which had been in place for several years, leaving the expectant mothers in that community angry or dissatisfied. Elliott Lake was without an anaesthetist recently, and this resulted in women having their first babies being sent to hospitals at considerable distance from the home community.

It is unfortunate that, in this age of technology and aspiration for the best perinatal care possible, the ability of obstetrical units to offer effective relief of pain in labour is on the decline. It is even more alarming that in future, operative obstetrical procedures may be compromised.

RECOMMENDATION

25. Immediate measures need to be taken by the Ministry of Health to train, recruit and sustain obstetrical, neonatal, perinatal and anaesthesia specialists in Northern Ontario, so that mothers and newborns will receive the same care as available in Southern Ontario.

III. PROBLEMS OF PERINATAL CARE IN SMALL ISOLATED COMMUNITIES

A. Medical Personnel

The shortage of medical personnel carries additional implications for smaller communities in the North. These communities are not large enough to support a specialist service and there are not enough deliveries to maintain the expertise of the local general practitioners, who consequently decline to provide obstetrical services. Furthermore, many smaller communities without hospitals may be some distance from the nearest physician.

B. Role of Nurse-Midwives

It has been suggested that midwives may be a positive addition to the perinatal health care system, especially in the provision of care in outlying areas. The midwife could also be of help to the family doctor or obstetrician in prenatal education, counselling and screening. In addition, some continuity of care might result if the midwife resides in the community. However, the issues of competency, workload and lifestyle would be just as relevant for the midwife as for the physician. Not all service providers are convinced that midwives would solve the manpower shortage. It is notable that the nature of health needs in isolated areas of the North would necessitate that individuals have both nursing and midwifery qualifications. In addition to the study of the role of the nurse-midwife, it will be important to explore ways in which the general practitioner can be encouraged and supported to return to obstetrical practice.

RECOMMENDATION

26. The role of the nurse-midwife should be evaluated in view of the perinatal needs of expectant women in Northern areas.

IV. ACCESSIBILITY TO PRENATAL SERVICES

A. Prenatal Education

A survey of prenatal education services in the North revealed that Regional centres in Northern Ontario are presently relatively well serviced. Public health units in each of these locations operate a range of prenatal education classes, although few of the classes focus specifically on "high risk" groups in the community. In addition to public health units, there are frequently other independent, voluntary groups that provide some kind of prenatal education and support.

Some high risk mothers (natives, teenagers, low socio-economic groups) are unable to utilize the services that are presently offered. Therefore, in the North, manpower deficiencies in the provision of prenatal education services has become a barrier to the development of an integrated preventive program.

Additional funding of public health units is required in order to extend the hours and frequency of prenatal education classes. Special sessions need to be developed for pregnant women which would address the problems of language, cultural differences, teenage pregnancy, native Canadians and single parents. In addition, mobile units may need to be developed to visit isolated rural areas. The entire program would need to have a multi-disciplinary team approach.

B. Prenatal Care

There are few prenatal services available in small communities. In outlying areas, women presently may not even receive basic prenatal services. Residents in these communities with no family physician, must travel to reach a practitioner or wait for services to be brought to them. These pregnant women may lack the resources to travel, and may therefore lack access to earlier and regular check ups, emergency care and prenatal classes. In these settings continuity of care is difficult.

RECOMMENDATION

27. Financial assistance or transportation must be provided to expectant mothers in isolated areas in order to facilitate early and regular prenatal care.

V. CONTINUING EDUCATION AND TRAINING

The Northeastern and Northwestern Regional Perinatal Advisory Committees both expressed concern regarding the lack of continuing education and training for health professionals. Barriers to education include lack of funding to send staff on courses or to replace staff attending a course, or to develop outreach programs. Limited resources, geographic and professional isolation and low number of deliveries for "hands on experience", contribute to an even greater educational deficit in the smaller communities.

Regional networking and linkage of tertiary care centres as well as affiliation with a university teaching program are urgent needs. Teleconferencing and other outreach programs need further expansion. Educational preparation of midwives and of clinical nursing specialists with additional certified skills for delegated medical acts are of concern.

RECOMMENDATION

28. The Ministry of Health should support regionalized linkages between modified Level 3 Units and University Level 3 Units for both nursing and medical professionals

VI. LEVEL "O" COMMUNITY HOSPITALS

Unique variables in the North such as distance, weather conditions and transportation problems have implications on the parent's choice of location for delivery and prenatal educational services. Both service providers and consumers in the more isolated communities expressed concern at the closing of and limitation of, the obstetrical services provided by small community hospitals which are often located at considerable distance from the next closest hospital. Technically, some of the very small hospitals cannot be considered as Level 1, yet they will inevitably experience the obstetrical patient, either arriving with an acute problem or by choice. The Northeastern Perinatal Advisory Committee recommended that such units be designated Level 0 and be kept operational. The development and maintenance of obstetrical skills of nursing personnel and family doctors, needs to be addressed if quality of care is to be in place for all.

VII. TRANSPORTATION

There is a major barrier to care in Northern Ontario because of the absence of public transportation and unique geographic and climatic conditions. Individuals are forced to use their own vehicles, often on small dirt roads or under hazardous weather conditions, in sparsely populated areas. Those without transportation must rely on family or friends and on vehicles that may not mechanically make the journey. Very few can afford expensive taxi services. THE NORTHERN TRAVEL GRANT PROGRAM is of significant help to those travelling more than 200 miles, one way, but is of little help to those travelling lesser distances or without available transportation. A Northern Transportation Study that includes some community initiative could result in the establishment of shuttle services, mobile clinics, community owned four wheel drive vehicles etc. that would ensure access to medical and prenatal care.

RECOMMENDATION

29. The Ministry of Health should establish a Northern Transportation Study with community initiatives which would have as its goal the establishment of a shuttle service for prenatal care or education. An alternative might be the acquisition of community owned four wheel drive vehicles suitable for transportation under hazardous weather conditions.

CHAPTER VI

HEALTH CARE PERSONNEL: A CRISIS IN SUPPLY

I. THE PROBLEM

A crisis exists in manpower for Ontario Tertiary Care Perinatal Centres and modified Tertiary Care Perinatal Centres. There is a current need for obstetrical and neonatal perinatologists, and for nurse specialists in obstetrical and neonatal perinatology.

A recent survey of the six health care regions in Ontario has demonstrated that, at the present time, there are jobs available for 17 obstetrical perinatologists, 22 pediatric perinatologists and at least 14 nurse specialists in the Province of Ontario. Furthermore, projections for 1990 revealed a need for 17 additional obstetrical perinatologists, 17 pediatric perinatologists and as many as 150 perinatal nurse specialists. These projections did not take into account the loss of existing specialists due to "burn out".

Finally, as the modified Level 3 Perinatal Centres are opened in Northern Ontario, a new mechanism of support for obstetrical and pediatric sub-specialists will need to be developed, before the centres will be viable as modified Level 3 Perinatal resources.

II. BACKGROUND INFORMATION

In 1982, the Ontario Medical Association called together representatives from the five existing tertiary perinatal centres in the Province and, as a result of this meeting, defined the job description of obstetrical and pediatric perinatologists. Their report identified 20 existing posts for obstetrical perinatologists and 25 for pediatric perinatologists. These guidelines for medical staffing of Level 3 and Level 2 perinatal care units were published and are still valid.

Since the time of the Ontario Medical Association Report, one new tertiary perinatal facility in Ottawa and 5 modified Level 3 perinatal facilities have been approved as essential for the perinatal program in the Province of Ontario. This has resulted in substantial new requirements for manpower, especially for the development of modified Level 3 centres in Northern Ontario. The Ontario Medical Association summarized the recommendations to the Ministry of Health as follows:

- there is an urgent need for permanent training positions to be establised in both obstetrical and pediatric perinatology

- it is proposed that a minimum of 5 permanent training positions in each of obstetric and pediatric perinatology be established. These positions should be distributed as follows: one each at Ottawa, Hamilton and London and 2 in Toronto. Consideration should be given to doubling these figures in the first one or two years of the program for pediatric perinatology, in order to address the present acute shortage
- the numbers and distribution of positions should be reviewed every 5 years.

The Ontario Medical Association recommendations were supported by the Committee but these recommendations have not been implemented by the Ministry. In 1985, a survey of the six health regions in the Province by the Committee revealed that there continued to be large numbers of positions open for obstetrical and pediatric perinatologists.

Recently, it has been perceived that the Ministry of Health has decided to limit the number of foreign medical graduates in Ontario. Until recently, in the absence of suitably qualified Canadian medical graduates, tertiary perinatal centres had depended on sub-specialty personnel from overseas. It now appears that these sources of skilled sub-specialists have been removed. As a result, inducements will be needed to produce sub-specialists from the pool of obstetricians and pediatricians in Ontario.

III. ROLE DESCRIPTIONS

A. Obstetrical Perinatologist

An obstetrical perinatologist is concerned with service, teaching, administration and research. This description reflects a team concept and therefore, funding should go to programs for support of personnel. The underlying assumption in this job description is a commitment to delivery of high risk mothers in the centre where the fetus would be looked after as a newborn.

1. Service

Service is crucial to the performance of Level 3 perinatology. Active tertiary care must be provided on a 24 hour a day basis both in-house and within the region. A referral service must be available.

2. Teaching

Teaching would involve undergraduate as well as post-graduate training of residents and post-graduate fellows. The perinatologist is also involved in teaching of nursing staff and allied health personnel in the community (and possibly lay personnel).

It is also important that the perinatologist would teach appropriate delegated medical acts to the Masters students in the perinatal nursing clinical specialist programs. In addition, the perinatologist would monitor these nurses initially and yearly to ensure that they maintain qualification for such acts.

3. Administration

Administration of the regional program would involve co-ordination of regional services, data collection and dissemination of regional statistics within the region as well as continuing medical education.

4. Research

Research is an essential component of a tertiary care job description for perinatologists, depending on the preferences and capabilities of the individual. Opportunities for research need to be considered in determining the amount of time given to this service.

B. Pediatric Perinatologists

The pediatric perinatologist has a parallel role to play in Perinatal Centres as that defined for obstetric perinatologists. Service will be provided on a full 24 hour in-house basis. Teaching, administration and research are essential to the pediatric perinatologist.

Training programs have been described by the Royal College of Physicians and Surgeons and require a 2 year program for certified pediatricians to become sub-specialists in pediatric perinatology.

At the present time there are no Ministry funded positions for the training of sub specialists in obstetric or pediatric perinatology. An urgent need exists for funding of positions for sub-specialty training. The drastic reduction in the number of foreign medical graduates permitted to come in to Ontario each year has removed one traditional source of specialists for tertiary care perinatal centres.

IV. TRAINING PROGRAMS FOR PERINATOLOGISTS

Training programs in Canada are presently in effect at the University of Manitoba, McMaster University, Dalhousie University and the University of British Columbia. The Maternal Fetal Medicine Committee of the Society of Obstetricians and Gynecologists is currently active in supporting these programs and has developed recommendations for curriculum, methods and assessment and evaluation of candidates. The Royal College of Physicians and Surgeons has recently developed a method for determining suitable programs for the training of obstetrical perinatologists. Training programs will be for Canadian certified obstetrician-gynecologists and will be for a two year period.

V. SPECIAL PROBLEMS IN THE NORTH

The Ministry has funded 4 modified Level 3 perinatal centres in Northern Ontario. At the present time, no sub-specialist obstetrical or pediatric perinatologists are in place in any of the four centres. There is no doubt that at least 2 obstetrical and 2 pediatric perinatologists will be required for the viable functioning of each modified Level 3 unit in Northern Ontario. These units will only exist on paper until properly trained professionals are in place. In addition to the lack of fully trained personnel for the units in Northern Ontario, a problem exists on how such professionals will be encouraged to practice in Northern Units.

RECOMMENDATION

30. The Ministry should develop a mechanism for compensation of obstetrical and pediatric perinatologists in the 4 modified Level 3 perinatal centres in Northern Ontario and the modified Level 3 centre in Windsor.

VI. POSSIBLE SOLUTIONS TO THE CRISIS IN MEDICAL MANPOWER

A. Train Canadian Obstetricians and Pediatricians

Only by training Canadian obstetricians and pediatricians, will we obtain a constant and predictable flow of sub-specialist obstetrical and pediatric perinatologists for the necessary manpower for tertiary perinatal units. This option is not only cost-effective in the immediate term, but is also cost-effective over the professional career of such sub-specialists.

It has been estimated by the Ministry of Health that a fellowship trained obstetrician costs approximately one half million dollars each year to the Ministry in fees and hospital utilization. The option to obtain training positions in 5 university centres in Ontario would keep 5 obstetricians out of private practice for a period of two years and, having successfully completed their sub-specialty training, would place them in hospital positions which would result in much less cost to the Ministry since tertiary and modified Level 3 centres have already been opened, and funded. In addition, sub-specialists in obstetrical and pediatric perinatology are very low earners in comparison to their peers. The two year training positions would support them with salaries slightly above a chief resident's salary and this would represent an enormous saving to the Ministry, since the trainees would not be in private practice or billing for OHIP services.

B. Maintain Status Quo

This option has been followed in the past, but does not address the problem of inadequate manpower in the area of obstetric and neonatal perinatology. Several sub-specialists have been imported from the United Kingdom. Indeed, when the new Mount Sinai tertiary perinatal care centre opened in Toronto, the only suitable Director was found in Northern Ireland. There are positions open for 39 obstetrical and neonatal perinatologists at the present time, and there is only one training program for such sub-specialists in the Province. The problem has been made more urgent by the announcement of the Minister of Health, that $2.5 million has been budgeted for the establishment of modified Level 3 centres in Sudbury, Sault Ste Marie, North Bay and Thunder Bay.

Therefore, this option is not viable in the current situation.

C. Allow Selected Perinatologists to Immigrate into Ontario

It is unlikely that immigration would fill the posts which are presently available, or which would become available in the future. In addition, it would be difficult to argue that only tertiary care perinatologist should be allowed into Ontario to practice medicine. It is nevertheless an option which would help to solve the immediate crisis.

RECOMMENDATIONS

31. The Ministry must establish a two year fellowship position in obstetrical perinatology for Canadian certified obstetricians in each of the tertiary care perinatal programs associated with University Health Sciences Centres.

32. The Ministry must establish a two year fellowship position in pediatric perinatology for Canadian certified pediatricians in each of the tertiary care perinatal programs associated with University Health Sciences Centres.

33. Until adequate numbers of Canadian trained medical graduates with expertise in perinatology are available, the Ministry of Health should facilitate immigration of appropriately qualified foreign trained medical graduates.

VII. NURSE SPECIALISTS

A. Background Information

The introduction of perinatal nurse specialists is one option which has been considered by the Minister's Advisory Committee in order to address a critical manpower shortage in tertiary and modified Level 3 perinatal centres. These nurse specialists would function in a leadership role which would include clinical, educational, research, and administrative responsibilities.

The nurse specialist is required in both obstetrical and neonatal areas in Level 3 centres. These specialists would have three key responsibilities:

- clinical management of high risk patients in collaboration with physicians and other health team members;
- education of staff and patients in the perinatal units;
- outreach programs affiliated with Level 3 centres.

B. Options

The Committee recognized several developments which suggested that nurse specialists could play an important role in addressing the manpower crisis in perinatology. These health professionals could ease manpower requirements in the transportation of pregnant women or newborns requiring tertiary care. Nurse specialists have been used in similar roles in the United States and nurse specialists are currently responsible for the success of the neonatal transport system at the Hospital for Sick Children. In addition, Level 3 perinatal Directors in Ontario have recognized the need for nurse specialists in their units.

At least one nurse specialist would need to be present in each Level 3 and modified Level 3 perinatal centre on a 24 hour day basis in both obstetrical and neonatal perinatology. Therefore, six nurse specialists would be required for each obstetrical and each neonatal unit and one nurse specialist would need to be available for participation in outreach programs affiliated with the centre. As a result, 13 nurse specialists would be required for each of the 4 modified Level 3 centres in Northern Ontario and similar numbers for the eight existing Level 3 centres in Southern Ontario. Reports from the Northeastern and Northwestern Perinatal Advisory Committees, submitted to the Committee, reinforce the immediate needs for nurse specialists in modified Level 3 centres in Northern Ontario.

C. Master's Degree Programs for Nurse Specialists in Perinatal Nursing

The major limitation to the introduction of the role of the perinatal nurse specialist in Ontario is the lack of Master's degree programs in perinatal nursing in Canada. The Committee reviewed the McMaster University project to prepare neonatal expanded role nurses that began in September, 1986. The Ministry of Health provided partial funding for this study.

The University of Toronto has developed a proposal to offer a sub-specialty to their Parent-Child specialty, within their Master of Science in Nursing Program. There will be perinatal clinical courses with an initial enrollment of up to four students per year, in each of the obstetrical and neonatal areas.

Perinatal clinical courses which incorporate the teaching of delegated medical acts by perinatologists as well as a graduate nursing course on the changes that occur in maternal, fetal and neonatal physiology will be offered in the fall of 1987. A course in Clinical Nutrition offered by the Department of Nutritional Sciences, which allows the student to focus on maternal and/or neonatal nutrition, is presently available. Other relevant elective courses such as embryology and neonatal pathology which would strengthen the preparation of these nurses will be initiated provided external funding becomes available.

Recruitment to the Master's program at McMaster has been inordinately slow. Many senior nurses working in Ontario's NICU's have the intellectual potential to enter the University Master's programs. Moreover, these nurse's skills and vocational aptitudes are such that they should be the obvious choices to enter such educational programs. Funding support should be made available which permits these nurses to take educational leaves.

In summary, the Committee endorses the use of clinical nurse specialists to help meet the manpower needs of Level 3 and modified Level 3 perinatal centres. The Committee recognized the enormous dilemma which now exists. There is an immediate need for 150 clinical nurse specialists in perinatal nursing at Level 3 and modified Level 3 units. (13 for each of the 11 perinatal centres and 7 for the neonatal centre at the Hospital for Sick Children in Toronto). However, there is a lack of perinatal nurse specialists due to unavailability of graduate programs in perinatal nursing, in Canadian Universities.

RECOMMENDATIONS

34. The Ministry of Health should encourage the Ministry of Colleges and Universities, through provision of funding, to support the initiatives already in place at McMaster and the University of Toronto towards development of Master's level nursing specialists in obstetric and pediatric perinatology.

35. The Ministry of Colleges and Universities should provide funding for the salary of a full-time nurse faculty member, qualified to teach perinatal nursing at the graduate level, at each university which mounts a specialty or sub-specialty program in these areas. This individual is essential as current faculty cannot concurrently teach courses and supervise clinical practice for the proposed numbers of both first and second year students.

36. In order to attract baccalaureate nurses to the perinatal specialty area, up to 8 scholarships equivalent in amount to the Ontario Graduate Scholarships should be made available per university per year to qualified applicants until such time that all Level 3 and modified Level 3 perinatal units in the province have reached their required quota of six clinical nurse specialists in the area of obstetrics, six in the area of neonatal perinatology, and one for educational outreach to referring hospitals.

37. In order to offer electives supportive to the perinatal nursing specialty, the Ministry of Colleges and Universities should provide the faculty or school offering the specialty or sub specialty, with funds to pay the related graduate departments to provide relevant elective courses such as embryology, neonatal pathology, clinical nutrition, etc.

VIII. EXPANDED ROLE NURSES

While an ultimate aim should undoubtedly be to provide each Neonatal Intensive Care Unit with neonatal nurse specialists as outlined above, there is already a crisis in medical care in the Province's NICU's as a consequence of resident cutbacks and restrictions on the entry of foreign medical graduates. The crisis is such that consideration must be given to interim expansion of certain aspects of the nurse's roles and to the roles of other health care professionals working in NICU's.

While recognizing that the Canadian Nurses Association's goal for the year 2000 is that, at entry to practice, all nurses will have a baccalaureate degree in nursing, at the moment the Community College continuing education programs in perinatal nursing should be encouraged in order to augment the nursing staff and to provide "hands on" care in increased numbers for Level 3 and modified Level 3 units in the Province.

The crisis in medical care in neonatal intensive care units requires a large number of expanded role nurses. Community Colleges, although capable of training nurses in perinatal nursing, are unable to provide the practical experience for the expanded role nurse. The Ministry of Health should expand the training of expanded role nurses in perinatal centres.

RECOMMENDATION

38. The Ministry of Health should support, encourage and markedly expand the continuing education programs in perinatal nursing, offered in the Community Colleges with practical experience in Tertiary Care Perinatal Centres. It is necessary to dramatically increase the numbers of Expanded Role Nurses to permit adequate staffing in each of the four modified Level 3 Centres in Northern Ontario and for the eight Level 3 centres in Southern Ontario.

CHAPTER VII

MONITORING OF REGIONALIZATION OF PERINATAL CARE: PROPOSED FRAMEWORK

I. BACKGROUND INFORMATION

The Committee and the six Regional Perinatal Committees contained members that were broadly representative of health care professionals and consumers with an interest in perinatal care. The success of their deliberations can be found in the recommendations of this document, regarding the Provincial Perinatal Program, the rationalization of tertiary and secondary care in the Province, improved transport of women and babies requiring tertiary care, establishment of data regarding problems with perinatal manpower and establishment of a method of analysis of perinatal statistics for the Province.

During the four year mandate of the current Committee, members have worked diligently to address the terms of reference that have been established. In addition to the terms of reference, the committee addressed numerous issues from the Ministry and was able to make recommendations which, because of the broadly representative nature of the committee and of its communication with regional perinatal committees, were seen as credible and unbiased. As a result of the deliberations of the current committee made up of volunteers, the Ministry and various interested groups had access to useful advice regarding directions in perinatal care services.

The Regional Committees were close to the problems of their particular regions and it is important to note that at least four of the six regions in the Province are as different in their perinatal requirements and concerns as if they were separate countries. This fact is not surprising, given the size of Ontario, and the diversity of its population and industry. Therefore, the success of the next Advisory Committee on Reproductive Care will require Regional Perinatal Committees to ensure credibility in their recommendations regarding improvements in perinatal care in the Province.

II. IMPLEMEMTATION OF THE ONTARIO PERINATAL PROGRAM

With submission of this report of the Committee, the Ministry receives a provincial plan of perinatal services and a series of recommendations which should lead to improvements in perinatal services, together with rationalization of perinatal resources. The plan consists of a series of overall recommendations, perhaps the most important of which is the development of an Ontario Provincial Preventive Perinatal Program, together with specific recommendations for rationalization and improvement of services in the six health care regions of the Province.

This ambitious provincial perinatal plan will require monitoring and re-evaluation, in light of changing hospital priorities, changing regional priorities and new developments in the area of prevention and of provision of perinatal services. An effective and inexpensive mechanism for ensuring implementation and ongoing monitoring of the provincial perinatal program would be to re-establish a new Advisory Committee in April, 1988.

The Committee has recognized, in its report that it is essential that a blueprint be drawn up for a new preventive program that would integrate and rationalize preventive services in the Province with the goal of reducing perinatal morbidity and mortality and in particular the incidence of low birthweight infants. The current report gives a recommendation for development of a provincial perinatal plan, but clearly successful achievement of these objectives will require a new Advisory Committee with a strong mandate to carry out this plan.

III. RE-ESTABLISHMENT OF MINISTER'S ADVISORY COMMITTEE ON REPRODUCTIVE CARE

A major priority in Ontario must be placed on achieving excellence in provision of total care to pregnant women, their unborn children and to their newborns during the first few critical weeks of life. Optimal perinatal outcome is of particular importance in the Province where the birth rate has been declining. The groundwork for an Ontario Provincial Perinatal Plan was first laid in the 1979 Report when the advisory committee recommended to the Minister of Health that the Province establish a Minister's Advisory Committee on Reproductive Care. The mandate of the current Committee began in March 1983 and will be completed in March 1988. This Committee was broadly representative of professionals and consumers with an interest in perinatal care. Members also represented six health care regions of the Province. With the end of the mandate in 1988, important input to the Ministry regarding the Ontario Perinatal Plan will cease.

RECOMMENDATION

39. The Minister of Health should re-establish an Advisory Committee on Reproductive Care with a membership that is broadly representative of health professionals, consumers and the geographic regions of the Province. The Minister should consider the following suggestions for new terms of reference for the reconstituted committee:

- To develop an integrated program for the prevention of perinatal damage through coordination of public health, media, clinical and social services.

- To advise the Minister on areas necessary for basic and clinical research in perinatal health.

- To monitor the Provincial Perinatal Program and determine the needs for alteration of the designation of perinatal centres, at all levels of care, in the six health care regions.

- To monitor and publish every 2 years, perinatal statistics that are available regarding mortality and morbidity.

- To monitor the provincial perinatal plan with regard to referral patterns, transport, manpower availability and professional training.

IV. RE-ESTABLISHMENT OF REGIONAL PERINATAL ADVISORY MECHANISMS

A. Background Information

During the period 1983-1985, the Regional Perinatal Advisory Committees primarily addressed the issue of rationalization of perinatal services in the six health care regions of Ontario. Each Regional Committee has a regional plan which identifies tertiary and Level 2 centres for delivery of perinatal services. During this time, the voluntary members of the regional committees spent large amounts of time assessing the levels of perinatal services within the hospitals of their region. They have been most successful in this segment of their original terms of reference.

A great gap in comprehensive planning and evaluation of perinatal services for Ontario now exists with the demise of the Regional Committees. The Provincial Committee will be severely limited in the advice to the Ministry, if this vital input mechanism at the regional level no longer exists. Moreover, the assessment and planning of perinatal services in a coordinated and comprehensive manner is still evolving and the important areas of prevention, education, and integration of associated programs are yet to be addressed.

Each Regional Committee was broadly representative, with membership consisting of physicians, nurses, nutritionists, consumers and other professional groups. These committees performed their duties well. They were able to develop a perinatal plan for the region, and to involve all perinatal units in this process.

B. Relationship of Regional Perinatal Committees to District Health Councils

Although District Health Councils originally appointed members to regional committees, there was not always effective feedback between the Regional Perinatal Committees and the District Health Councils. This unfortunately resulted in friction in some regions.

Nevertheless, given the high priority of perinatal services in the health care system, and the fact that District Health Councils will have perinatal committees of different degrees of expertise, the best solution for comprehensive coordination of perinatal services in the region still seems to be the Regional Perinatal Advisory Committee. The need for the committee to have close communication links with DHC's in Health Care Region is vital, and every attempt should be made to prevent a breakdown in communications.

C. Implementation of the Ontario Perinatal Program in Health Regions

The Committee has carried out its mandate and continues to pursue an agenda which not only includes delineation of a Provincial Perinatal Plan, but also includes topics relating to prevention, statistical analysis of perinatal data, establishment of an integrated transport system for patients, research direction and problems regarding manpower for perinatal services in Ontario.

The agenda of the Committee depends to no small extent on feedback and critical comment from Regional Perinatal Committees. The Province of Ontario is so large and its Health Care Regions so diverse that policies and programs which might seem essential and obvious to persons in Southern Ontario might present major problems if implemented in the North or even in the most Eastern and Western parts of the Province. During the past four years, the Committee came to understand that Regional Perinatal Committees were essential to its activities. Since the Regional Committees have been disbanded, vital regional input to the discussion of perinatal issues has been lost.

D. Options Concerning Re-establishment of Regional Perinatal Mechanisms for Coordinating and Monitoring the Ontario Perinatal Program

1. No Regional Mechanism

This option is not viable. The Terms of Reference of the Committee cannot be addressed adequately without regional perinatal feedback. Provision of services to pregnant women and newborns in the Province cannot be monitored by a Central Committee without the special regional expertise which has proven to be so important in the past.

2. Re-establish a Regional Perinatal Mechanism

It is essential that a Regional Perinatal Mechanism be developed that would provide direct feedback to District Health Councils. Members of the proposed new regional committees would be nominated by District Health Councils and should be encouraged to directly discuss issues with the DHC's that come out of Regional Perinatal discussions.

The newly designed Regional Committee should be administratively structured in order to guarantee feedback to DHC's and at the same time have a strong linkage to tertiary perinatal care resources in the Region. The new Regional Committees would have a joint responsibility of reporting both to DHC's and to the Committee.

RECOMMENDATION

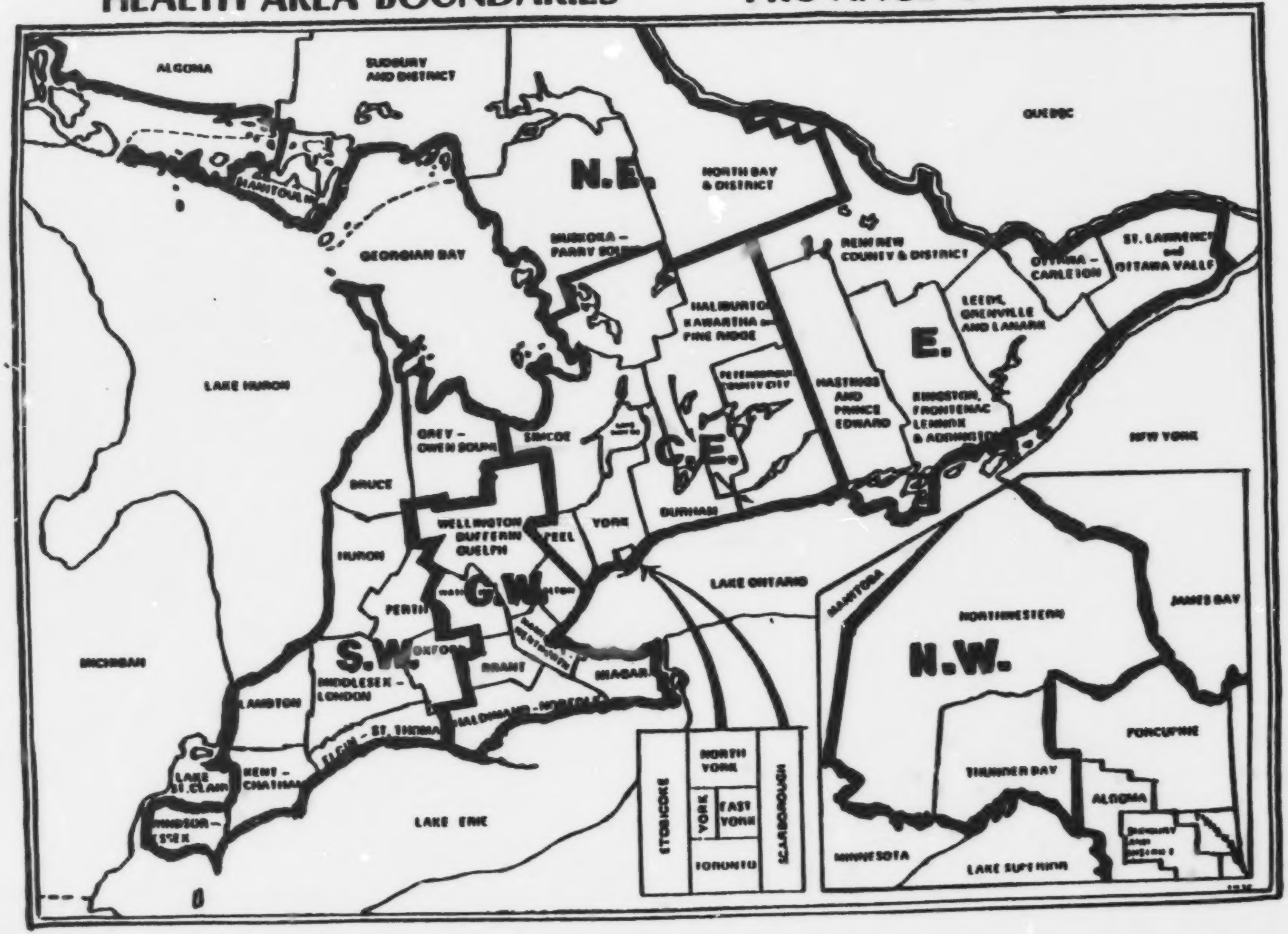
40. The Ministry must re-establish A Regional Committee mechanism and should consider the following terms of reference:

- To develop an integrated preventive program to promote decreased perinatal morbidity and mortality through coordination of public health, social services, nutrition and clinical services.
- To coordinate, evaluate and monitor a regional plan for perinatal care with regard to facilities, personnel, referral patterns, transport and uniform record keeping, using the guidelines in the 1979 Report.
- To collect and monitor statistics of perinatal mortality and morbidity in the region.
- To assess the need for regional educational programs and communications network.
- To assist the Committee in carrying out other identified perinatal activities on a regional basis.
- To submit an annual report on its activities to the Committee.

APPENDICES

APPENDIX A

HEALTH AREA BOUNDARIES PROVINCE OF ONTARIO


ALGOMA
SUDBURY AND DISTRICT
QUEBEC
MANITOULIN
N.E.
NORTH BAY & DISTRICT
MUSKOKA – PARRY SOUND
GEORGIAN BAY
RENFREW COUNTY & DISTRICT
OTTAWA – CARLETON
ST. LAWRENCE and OTTAWA VALLEY
LEEDS, GRENVILLE AND LANARK
HALIBURTON KAWARTHA PINE RIDGE
E.
LAKE HURON
PETERBOROUGH COUNTY CITY
HASTINGS AND PRINCE EDWARD
KINGSTON, FRONTENAC LENNOX & ADDINGTON
GREY – OWEN SOUND
SIMCOE
C.E.
NEW YORK
BRUCE
WELLINGTON DUFFERIN GUELPH
PEEL
YORK
DURHAM
HURON
G.W.
LAKE ONTARIO
MANITOBA
NORTHWESTERN
JAMES BAY
PERTH
S.W.
OXFORD
BRANT
HAMILTON WENTWORTH
NIAGARA
MICHIGAN
N.W.
LAMBTON
MIDDLESEX – LONDON
HALDIMAND – NORFOLK
ELGIN – ST. THOMAS
PORCUPINE
NORTH YORK
THUNDER BAY
LAKE ST. CLAIR
KENT – CHATHAM
ETOBICOKE
YORK
EAST YORK
SCARBOROUGH
ALGOMA
WINDSOR – ESSEX
LAKE ERIE
TORONTO
MINNESOTA
LAKE SUPERIOR

APPENDIX B

ISSUES FOR THE PROPOSED EXPERT COMMITTEE TO CONSIDER

1. Public Education and Information

a) Role of the Media

The Ministry of Health does not have a provincial campaign targeted at pregnant women to decrease or stop smoking and drinking alcohol during pregnancy. However, "Guidelines (Phase 1) for the provision of Mandatory Health Programs and Services under the Health Promotion Act, 1983", clearly state:

"In addition, education activities through mass media to promote good prenatal care and lifestyle are advocated."

Over the years, the Ministry's policy of shifting emphasis from curative services to prevention has been paralleled by changed public attitude from mere illness care to preventive care. Studies show more prematurity, mental retardation, respiratory illness, and even a higher risk of Sudden Infant Death Syndrome occurs among mothers who smoke during pregnancy. The effects of alcohol, depending on amount and other variables, can range from prenatal growth retardation and developmental delay, to fetal alcohol syndrome. Awareness of these hazards has led some women to seek more information, and even change their lifestyle, at least temporarily, for the sake of their babies. Unfortunately, not all consumers have this information, or react as positively.

We need "educational activities through mass media to promote good prenatal care and lifestyle". It is the best method of reaching and influencing the largest number of people. A media campaign can bring social peer pressure and strong self-motivation to make pregnant women feel they must not smoke and should abstain from drinking during their pregnancy.

A media campaign could include TV, public and cable, radio, newspapers and magazines. The consumer is so barraged by warnings of hazards and toxins, that there is a tendency to ignore a general warning. The statement "Smoking and drinking while pregnant can be harmful to you and your baby", informs, but does not motivate. To be effective, the message must be brief, graphic, and more specific. What kind of harm will it do?

For example, "The Feminine Mistake" produced by the American Lung Association is an excellent example demonstrating the immediate harmful impact of maternal smoking on the fetus. This should be effective, even with hard to reach and high risk groups.

Radio and Television

If possible, celebrities in the fields of sports and entertainment should be used for ads on both media, since they gain more immediate attention, and there is a strong carry-over of their charisma. All ads should be part of prime-time popular shows or sports events, on "Rock" stations, etc. to reach the people with the greatest "need to know". Mass media can reach almost all consumers, to inform and motivate them to perform good lifestyle habits, and reduce hazards to both the pregnant mother and her child.

Newspapers and Magazines

Some papers, such as the Globe and Mail, will no longer carry tobacco advertising. However, more must be done. Counter advertising should be introduced in a meaningful and effective way to reach the population at large. Canada is vulnerable to programming originating in the United States. Moreover, the number of teenagers and women smokers is rising.

RECOMMENDATION

As the mass media reaches the population at large, including pregnant women, it should be considered as an integral component of any overall prenatal preventive strategy for the province.

b) Preconception Education

If preventive health education is to be effective, it needs to be given before conception and early in pregnancy. Most women may be at least twelve weeks pregnant by the time they have their first prenatal appointment or attend their first prenatal class. But it is in the first eight weeks of pregnancy that the embryo (not yet a fetus) is most vulnerable to anything which might cause slow or faulty growth. Therefore to optimize chances of having a healthy baby, a women should prepare for pregnancy as carefully as she prepares for birth, by making the changes she wants to make before conception.

Preconception care consists of health education in the schools, family planning services, primary health care, and mass media health promotion. Primary health care should include: health assessment of women before conception, identification of risk factors and where possible, interventions to reduce them. Health education and promotion activities should focus on good health, risk reduction or avoidance, and available resources.

There were references to the issue of preconception education in the reports of the Southwest Regional Perinatal Advisory Committee (Recommendation 7), the Eastern Regional Perinatal Advisory Committee (Recommendations 26 and 27) and the Central East Regional Perinatal Advisory Committee - (health education for prenatal care to begin in the school system and extend to all sectors).

RECOMMENDATION

The Expert Committee should give consideration to:

- the role of the educational system in preconception education
- the role of the media
- health promotion skills of health care providers.

c) Prenatal Education

The literature relating to prenatal education generally concurs on the purposes of prenatal education, namely: to minimize fears about childbirth; to decrease the amount of medication needed during labour and delivery, to minimize the pain of delivery; to enhance parent-infant bonding; to encourage breastfeeding; to ease the transition to parenthood; and to reduce the incidence of low birthweight. Methods employed include provision of knowledge, skills, and support.

However, despite concurrence regarding purpose, there is a large variability in reported outcomes. The advantages reported include: shorter labour; reduced trauma in labour; less use of analgesia and anesthesia; reduced pain or pain perception; less blood loss; less hypertension; less prematurity; greater maternal satisfaction; fewer complications; higher initial neonatal APGAR scores; reduced maternal anxiety; better postpartum attitudes; smoother convalescence; decreased body tension in labour; greater cooperation during labour; decreased postpartum depression; positive attitudes about future pregnancies; less obstetrical intervention; greater oxygenation of blood, lower incidence of infant resuscitation; better adjustment in the nursery; decreased fetal mortality and morbidity; and greater maternal self-esteem. The effects have not been demonstrated consistently. Differences are attributed to: program variations; imprecise measuring tools and other methodological research errors. The only consistent benefit observed is increased or strengthened self-image for the childbearing parent. There clearly is a need for scientific and precise program evaluation.

Accumulating evidence regarding the effects of nutrition, smoking and alcohol consumption during pregnancy suggests a possible role for early prenatal education and health behaviour change. "Early-bird" classes are being offered to women in the first trimester to promote optimal self-care in pregnancy. Topics include nutrition, exercise, and drugs. More recently it is recommended that pregnant women be educated to understand their own risks and recognize early any suspicious signs or symptoms associated with premature labour and to modify amenable risk factors associated with increased uterine activity and preterm labour.

A problem area in prenatal education is the need for services tailored for women with special needs, i.e., age, cultural, language, social or economic needs. Present course participants tend to be older, better educated and less likely to smoke than non-participants. Therefore it is questioned whether the type of person who elects preparation is more important in determining its effect than the preparation itself. There is a need to find ways of encouraging high risk women to attend classes and once there, ensure that the classes are sensitive and specific to their needs. Furthermore, not all women are able or willing to attend classes. Therefore other methods are required.

The U.S. Institute of Medicine Committee argued that greater reliance should be placed on nurse-midwives and nurse-practitioners, particularly for hard-to-reach high-risk women, because they seem to relate to their patients in a less authoritarian manner, are likely to spend more time with their patients and give greater emphasis to education, support and patient satisfaction.

Those prenatal care programs that have a demonstrated impact on birth weight usually go beyond routine services to include flexible combinations of education, psychosocial and nutritional services, careful screening for medical risks, a rapid response to the first sign of premature labour and key clinical interventions.

A variety of research programs are needed to analyze current prenatal care practices, assess the efficiency of individual components of prenatal care and evaluate combinations of prenatal interventions.

Several of the regional perinatal committee reports addressed the topic of prenatal education. Recommendations referring to early pregnancy or first trimester classes appeared in the Eastern (20) and Northeastern (2-iv of Survey of Prenatal Educational Services Report) Reports.

Many of the recommendations addressed provision of services to high risk women - Southwest (5,9) Eastern (20,21,22,23,24,25), Northeastern (2,i,ii,iii,iv); overcoming barriers to use of existing services - Southwest (11,12), Northeastern (2, vi), and Central East (Report of Working Group on Preventive Services); and ensuring referral of high risk women - Southwest (7,8). Other issues relating to prenatal education that appeared in the recommendations include: multidisciplinary approaches - Northeastern (2 v, vii); postpartum classes - Northeastern 2 viii); refresher classes - Northeastern 2 ix); p and smoking cessation classes- Eastern (20 D).

RECOMMENDATION

The Expert Committee should give consideration to:

- evaluation of prenatal education with respect to behavioural change, risk reduction and birth outcomes.
- how to overcome barriers to use of existing services.
- liaison with physicians.
- identification and referral of high risk women.
- the need for minimum standards or other approaches to ensuring the quality of prenatal education services.

2. LEGISLATION OR FINANCIAL APPROACHES

There currently exist, throughout the world and in Canada, programs which utilize legislative or financial approaches in an attempt to modify risk factors for perinatal mortality and morbidity.

Financial

For example, Finland has had a policy of free prenatal care for all pregnant women. Attendance at prenatal clinics was 99.3%. Financial incentives are provided to encourage early attendance. Homemakers are widely available to women during pregnancy and the early weeks following birth. Norway and Sweden also provide free prenatal care for their women.

In the U.S., the Women, Infant and Children (W.I.C.) supplemental feeding program which was legislatively enacted in 1972 provided supplemental food to high risk pregnant women, infants and children up to age five. Food supplements are also used as incentives for early antenatal care.

Standards

As part of its regionalized approach to obstetrical care, France, in 1971, required inoculations against Rubella for all girls by age 13 and for all women working with children; enforcement of standards for construction, size, equipment and staffing of all maternity units; and enforcement of minimum standards for resuscitation of newborns.

Working Women

The province of Quebec has acknowledged the stressful effect of working conditions on pregnancy and offers a unique maternity leave "retrait preventif". Few, if any, of these legislative and financial approaches exist in Ontario.

RECOMMENDATION

The Expert Committee should give consideration to:

- linkage of family allowance to attendance at prenatal and postnatal care;
- extension of maternity benefits before delivery and beyond 17 weeks after delivery for occupations assessed as being potentially hazardous;
- enforcement of minimum standards for perinatal care and prenatal education;
- ensuring availability of well-trained professional personnel;
- labelling of products hazardous to the fetus such as cigarettes and alcohol.

High Risk Services

These services are primarily provided in the community by Health Units. The public health nurse can play a direct counselling role as well as linking the client to community and social services. They would also appear to be services very complementary to those provided by a physician in his/her office. There is a frustration on the part of medical officers of health who clearly have trouble reaching clients with these services at a time when they are under physician's care.

There is a need for better communication and cooperation among physicians of Health Units and other service providers. With so much of low birthweight and prematurity strongly linked to social and economic factors, and with little evidence of progress in preventing this problem by the current health care system, there is a clear need to review the effectiveness and appropriateness of currently available services and their interaction with the more traditional health care system.

Effective services addressing social, economic and lifestyle issues are an important component of any overall regional plan for reproductive care. Current services are not highly focused and those that exist are not well utilized.

RECOMMENDATION

The Expert Committee should give consideration to:

- reviewing evidence for successful interventions, particularly for cigarettes, alcohol and teenage pregnancy.
- considering structures to optimize coordination of physicians, health units and other community agencies.
- reviewing and make recommendations on ways to attract and influence high risk clients.

Appropriate funding for epidemiologic and clinical research should be available for the:

- prevention of prematurity and low birth weight and congenital anomalies.
- evaluation of the safety and efficacy of current and future prevention and treatment strategies.
- development of a province-wide data base on perinatal statistics with linkage of antenatal information with outcome measures of morbidity and mortality in relation to distribution, availability and use of services.
- improvement of screening measures to predict poor reproductive outcomes or risk in pregnancy.
- evaluation of methods to improve client satisfaction with services.

APPENDIX C

A DISCUSSION PAPER

Strategy for Dealing With Changing Trends in the Delivery of Reproductive Care

Background

At the April 29th, 1983 meeting of the Provincial Advisory Committee on Reproductive Care, concerns were expressed regarding the lack of continuity of care resulting in fragmentation of reproductive care, dissatisfaction with care received and inefficient use of antenatal services.

A subcommittee, consisting of Mrs. Kathy Goetz-Perry (Clinical Nurse Specialist), Dr. Kenneth Shonk (Family Physician), Ms. Elaine Stefani (Consumer), Dr. Paul Swyer (Perinatologist) and Mrs. Mary Lou Walker, Chair, (Parent-Child Health Consultant), was established to prepare a paper on these issues, for discussion by the Provincial Advisory Committee on Reproductive Care. The Committee has subsequently discussed this paper and revisions thereof.

Statement of the Problem

Multiple professionals interact with the family unit during the reproductive period (Swyer, 1969), (Table 1). This may interfere with the development of a therapeutic relationship between the client and a significant care-giver. The absence of a co-ordinating person increases the potential for fragmentation of care, expecially for high risk groups, who interact with multiple specialized care-givers i.e. obstetricians, perinatologists, neonatologists.

There is consumer pressure to liberalize reproductive care and make it more acceptable to women by providing options to meet particular needs. This pressure is evidenced by the demand for alternative birthing centres, home births, hospital birthing options, family-centred maternity care, early hospital discharge, and use of midwives.

Specific examples in Ontario include: ongoing home births in Guelph, Kitchener-Waterloo, London, Ottawa and Toronto areas; active midwives in Kitchener-Waterloo and Toronto Areas; active groups providing information and support to those seeking home births in London and Toronto; and active birth centre committees in Kitchener-Waterloo and Toronto.

A 1979 survey of women in the region of Peel documents the dissatisfaction felt with obstetrical care received. The production of the film "Childbirth...the Changing Sounds" (Canadian Institute of Child Health) and current reactions to it, are indicative of the need for changes in current obstetrical care.

One can speculate that this demand stems from a feeling of depersonalization on an assembly line of multiple professionals, inability to develop an adequate relationship with one or two caregivers, and lack of opportunity to ask questions and receive sufficient information.

The outstanding question is whether dissatisfaction with care will lead to non-attendance or inefficient use of antenatal services, putting pregnant women at higher and unnecessary risk.

The problem of availability of primary care-givers in Ontario may be compounded by the sharply increased fees of the Canadian Medical Protective Association, which is resulting in some family physicians discontinuing the practise of obstetrics. This will result in women having to establish a relationship with a new person, the obstetrician, during pregnancy. Furthermore, increasing numbers of obstetrician/gynecologists are choosing to practice gynecology only.

The new Canada Health Act may contribute to this problem by resulting in fewer physicians choosing to practise obstetrics. This will increase the workload of remaining practising obstetricians, thereby causing them to spend even less time with pregnant women, which may adversely affect the establishment of a trusting doctor-patient relationship.

The problems of fragmentation of care, client dissatisfaction with care received, and inefficient use of antenatal services are indirect contributors to maternal and infant morbidity and mortality. Women who are most at risk for delivering low birth weight babies are often less likely to present themselves for antenatal care at an early stage of pregnancy, or to attend regularly, in our present system of reproductive care.

The situation differs in the Scandinavian countries which utilize financial incentives for early and regular antenatal attendance: Finland reports 91% attendance by 16 weeks (Wynn & Wynn, 1977) and Sweden reports 99% attendance from the beginning of pregnancy (Rooth, 1979). Their perinatal statistics, in particular, their low incidence of low birth weight, are superior to ours (Table II). However, our current system is better than most countries and our statistics reflect this. Nevertheless, in order to maintain and improve our positive perinatal outcome, the problems previously mentioned need addressing before they escalate.

1. The Family Physician

To facilitate the family physician in fulfilling this role, there should be dialogue with the College of Family Practice, the Ontario Medical Association, the College of Obstetrics and Gynecology, and medical schools. Consideration should be given to altering prohibitive aspects of doing primary reproductive care and fostering changes in attitude. The advantage of this option is the fact that the family physician is already in the system.

2. The Reproductive Care Nurse

The suggested introduction of the role of the reproductive care nurse is an attempt to address consumer demand for comprehensive and continuous care during the maternity cycle and provide such care to clients for whom it is not presently accessible. The services of the reproductive care nurse complement the services of other health care professionals. Since this is a new role, a brief description follows:

The reproductive care nurse is a registered nurse, with additional formal preparation in maternity and infant care, who has met identified standards for certification in the specialty area in Ontario. The reproductive care nurse incorporates the expertise of nursing with advanced theoretical knowledge and clinical skills in maternity and infant care. In this role, she functions as a member of the health care team during the normal reproductive cycle.

With emphasis on education, counselling, support, physical care, and family advocacy, the reproductive care nurse provides and coordinates care to families during preconceptual, antepartum, intrapartum, and postpartum periods; carries out preventive and health promotion measures; provides counselling and education, including family planning services and parent education; is knowledgeable about deviations from normal; determines the need for and makes appropriate referrals; and collaborates with other members of the health care team. An important aspect of the role is outreach to the "hard-to-serve" clients who do not present for antenatal care or do so late and irregularly.

The reproductive care nurse, with her additional preparation, functions as a member of the health care team, in the care of mother and infant. She may function in a variety of settings including physicians' offices, obstetric outpatient clinics, alternate birthing centres, hospital obstetrical units, community health centres, public health agencies, perinatal intensive care units, and clients' homes. Specific functions of the reproductive care nurse depend on the individual practice setting.

Possible Strataqies For Dealing With the Problem

The subcommittee's approach to the preceding problem areas is to recommend that one health professional serve as the coordinating link. This person would decrease the fragmentation of care and the duplication of services. The client could identify with, and develop a relationship with this person, which would increase satisfaction with care received.

Referring back to Table 1, the best person to assume this role, because of client interaction at several points in the reproductive period, is the family physician. The family physician is the key access into the health care system. A therapeutic relationship between the physician and the client may already exist and will likely continue past the pregnancy. However, numerous issues, such as time, willingness, finances, etc., may interfere with the family physician serving in this coordinating role.

In the event that the family physician does not assume this coordinating role, we suggest that a reproductive care nurse (an expanded role for the obstetric nurse) be utilized. The reproductive care nurse would not be an independent practitioner but would work with the family physician and obstetrician. The person serving in this role would blend advanced knowledge and skills in reproductive care with a family-centred or holistic philosophy in his/her practice. In providing coordinated, continuous and comprehensive care throughout the reproductive cycle, this person would improve the family's reproductive experience and satisfaction with care received.

Countries such as Sweden and Finland, who have the best reproductive care statistics, utilize a similar option, in conjunction with the use of financial incentives. In Sweden, a woman in normal pregnancy or with an obstetric or gynecological problem is encouraged to make regular contact with her district based midwife who operates out of a Women's Clinic visited by obstetricians. The midwife is looked upon as women's first friend in all their obstetric and gynecological problems. Antenatal care is shared between the midwife and the obstetrician: of an average 13.5 antenatal consultations, 9.5 are with midwives and 4 with doctors. In Finland, a woman would report to a midwife who would be found at the local maternity and child health centre. With an average of 14.5 antenatal consultations, 11.8 are with midwives and 2.7 with doctors. The success of antenatal care is seen in these countries as depending upon a personal relationship of trust and confidentiality between the midwife and pregnant woman (Wynn & Wynn, 1977).

The two options i.e. the family physician or the reproductive care nurse are not mutually exclusive. Both professionals could work together in providing continuity of care, or the reproductive care nurse could assume the role and be responsible to the medical practitioner:

Conclusion

The Subcommittee appreciates that the mechanisms of implementation, i.e. referral source, accountability and authority, reimbursement, training/preparation, and certification, are problematic. These issues are proposed for discussion later, pending feedback from the regional committees on the problem and proposed strategies.

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June, 1984

Advisory Committee on
Reproductive Care.

TABLE 1

Interaction With Professionals in the Reproductive Period.

A. Pregnancy Diagnosis
Family Physician, Obstetrician, Biochemist

B. Management of Pregnancy

Elements of Care
- Prenatal classes
- Nutrition
- Employment
- Socioeconomic status
- Intelligence/character of parent (Cooperation)
- Assessment of risk factors
- Consultation

Personnel
- Family Physician
- Obstetrician
- Medical Officer of Health
- Public Health Nurse
- Social Worker
- Nutritionist

C. Management of Delivery

Location
- Level III
- Level II
- Level I
- Home
- Birthing centre

Personnel
- Family Physician
- Obstetrician
- Anesthetist
- Nurse(Obstetric/Neonatal/Paediatric)
- Neonatologist/Paediatrician

D. Postnatal Care

Maternal Supervision
- Family Physician
- Obstetrician
- Public Health Nurse
- Social Worker

Infant Supervision
- Family Physician
- Paediatrician/Neonatologist
- Medical Officer of Health
- Public Health Nurse
- Social Worker
- Psychologist
- Neurologist
- Nutritionist

E. Interconceptional Care Family Planning

Personnel
- Family Physician
- Obstetrician/Gynecologist
- Paediatician
- Medical Officer of Health
- Public Health Nurse
- Social Worker
- Nutritionist

F. Research Element

Personnel
- Epidemiologist, Statistician
- Researcher-Obstetrics, Paediatrics
- Laboratory

TABLE II

COMPARATIVE PERINATAL STATISTICS

	Ontario	Sweden
Perinatal mortality (per 1,000 births)	10.9 (1980) 10.3 (1981) 10.1 (1982)	9.4 (1978)
Low birth weight ratio	5.8% (1981) 5.4% (1982)	4.1% (1981)

APPENDIX D

ONTARIO MEDICAL ASSOCIATION

DISCUSSION PAPER ON DIRECTIONS IN HEALTH CARE

ISSUES RELATING TO CHILDBIRTH

Prepared by the O.M.A. Committee on Perinatal Care

April 23, 1984

THIS DISCUSSION PAPER HAS BEEN ACCEPTED FOR INFORMATION BY THE O.M.A. BOARD OF DIRECTORS. THE BOARD REQUESTS ITS CIRCULATION BE CONFINED WITHIN THE O.M.A. AT THIS TIME - MAY 1984.

TABLE OF CONTENTS

I. GOALS OF THE PAPER

II. SUMMARY - ISSUES RELATING TO CHILDBIRTH

- Medical Practice Trends
- Changing Role for Nurses
- Societal Issues
- Alternative Personnel
- Home/Institutional Care
- International Developments in Reproductive Care
- Government Priorities
- Measures of Outcome

III. HEALTH CARE LEADERSHIP AND SOCIETAL OBJECTIVES

- Health Care Leadership
- Societal Objectives

IV. HEALTH CARE

- The Traditional System Described
- Evolution in Health Care
- CONCERNS FOR DISCUSSION - PAGE 8

V. REPRODUCTIVE CARE

- The Traditional System Described
- Evolution in Reproductive Care -
  - Evaluation of Outcome
  - Conflicting Rights
- CONCERNS FOR DISCUSSION - PAGE 12

VI. MEDICAL PRACTICE - TRENDS IN ONTARIO

- Physician Training
- The Role of Family Physicians in Hospitals
- Medical Lifestyle
- Nurse Practitioners in Medical Practice
- Trends in Medical Liability Expenses
- Remuneration for Medical and Surgical Care
- CONCERNS FOR DISCUSSION - PAGE 14

VII. REPRODUCTIVE CARE - TRENDS IN ONTARIO

- Fetal and Neonatal Wellbeing
- Regionalization in Perinatal Care
- Malpractice Costs
- Shared Care
- Birth
- Family Practice
- Allied Health Personnel
- Family Physician Training
- CONCERNS FOR DISCUSSION - PAGE 17

VIII. NURSING

CONCERNS FOR DISCUSSION - PAGE 18
Reproductive Care Nursing
Community Nursing
Malpractice Costs
CONCERNS FOR DISCUSSION - PAGE 19

IX. SOCIETAL ISSUES

Social and Health Care Movements
Societal Issues and Obstetrical Care
How do these Health and Social Trends Emerge in Obstetrical Practice?
CONCERNS FOR DISCUSSION - PAGE 24

X. NEW MANPOWER: ECONOMICS AND PATTERNS OF PRACTICE IN HEALTH CARE

Health Care
- Method of Funding
- Evolution of Personnel

CONCERNS FOR DISCUSSION - PAGE 26

Reproductive Care
- Obstetrical Nursing Care
- Midwifery - Definition of Terms
- New Obstetrical Personnel
- Canadian Midwives

Future Developments
CONCERNS FOR DISCUSSION - PAGE 29

XI. HOME VERSUS INSTITUTIONAL CARE

Home Births
- Medical Policies
- Philosophy
- Future Discussion

Utilization and Access to Health Care
CONCERNS FOR DISCUSSION - PAGE 31

Hospital Births
CONCERNS FOR DISCUSSION - PAGE 32

Innovations in Obstetrical Health Care
CONCERNS FOR DISCUSSION - PAGE 33

U.S. and International Experience and Trends
CONCERNS FOR DISCUSSION - PAGE 34

XII. GOVERNMENT INTEREST IN HEALTH CARE
    Federal Government
        - Principles of Medicare
        - Alternative Personnel
        - Opting Out
        - Guidelines
    Provincial Government
        - Financial Constraints
        - Health Care in the '80s
        - Regionalization of Perinatal Care
    CONCERNS FOR DISCUSSION - PAGE 38

XIII. SUMMARY

XIV. BIBLIOGRAPHY

The O.M.A. has a responsibility to its members to help them maintain a position of leadership in health care matters.[1] This depends in part upon keeping an informed and stimulated membership.

I. GOALS OF THE PAPER

1. To bring wide-ranging discussions about health care in general and specifically reproductive care into clearer focus for O.M.A. members so that potential changes are clearly articulated for discussion and consideration.
2. To identify those issues which in our view are most likely to stimulate productive and positive discussion and have a significant impact on the provision of health care. This paper is not an exhaustive review of all relevant health care issues.
3. To encourage and stimulate discussion on the future direction of reproductive care in Ontario among O.M.A. members.

II. SUMMARY OF ISSUES RELATING TO CHILDBIRTH

There are a number of reasons why it is timely for physicians to reflect on the future directions of health care in Ontario and their specific application to childbirth:

Medical Practice Trends

There are a number of changes in the patterns of medical practice which will influence the delivery of health care, for example the declining role of the G.P. in urban hospitals,[2, 3] the high profile of new medical-legal issues.[4] Obstetrical practice is also experiencing change in itself, e.g. growth of fetal monitoring,[5] family centred maternity care,[6] and regionalization of perinatal care.[20]

Changing Role for Nurses

The nursing profession has identified a number of concerns about its present and future role in the health care system, e.g. a wish for an independent clinical role and major voice in health care decision-making.[8]

Societal Issues

There are a variety of societal and health care philosophies that are having an impact on patients' attitudes towards the health care they receive or will accept.[9, 10, 31] This includes controversies in maternal versus fetal rights.[7]

Alternative Personnel

There is a general interest in the use of alternative personnel to physicians: nurse practitioners, midwives, O.R. technicians, paramedics.[8, 11, 12] If physicians wish to continue to be the prime providers of health care, they may have to adjust their approach in the future to better satisfy patient expectations.

Home/Institutional Care

There is debate about the provision of certain aspects of health care in institutions vs. the home, e.g. birth, death, care of the elderly, mentally ill, handicapped.[13]

International Developments in Reproductive Care

Health care developments in the U.S. and elsewhere sometimes influence Ontario. They should be studied and understood, e.g. physician versus institutional liability,[14] the growth of alternate birthing centres,[15] standards of care, the place of coaches, and other support techniques during childbirth.[16, 17]

Government Priorities

Physicians should be looking at the health priorities emerging from the recent consultation process by the Ministry of Health and the Ontario Council of Health as well as the effects of fiscal restraint. Both may have some impact on the direction of health care in the future including obstetrical care.[18]

Measures of Outcome

There are questions about the measures of optimal outcome in health care matters. Is it appropriate to define them in biological terms alone with no reference to the psycho-social?

The O.M.A. Committee on Perinatal Care feels these areas should be thoroughly explored and discussed in the hope that some consensus will emerge to help us maintain our high quality of health care in this province.

III. HEALTH CARE LEADERSHIP AND SOCIETAL OBJECTIVES

Health Care Leadership

Members of the medical profession, by virtue of their training and background, demonstrate leadership qualities in the management of clinical problems. While they lack the same degree of expertise and overall authority when it comes to directing the management and evolution of the health care system, health care professionals do nevertheless contribute wisdom and experience at this level.

The clinical experience of physicians constitutes the basis for a practical influence on the decisions to be made regarding appropriate systems of health care delivery. Effectiveness in this advisory capacity, however, calls for a different style of leadership from that appropriate in the clinical setting. Leadership in these forums requires persuasion in communicating the views of the medical profession to other members of society who have a wide range of legitimate but sometimes conflicting social values and goals.

Societal Objectives

It is clear that the human species does not need modern medical care to reproduce itself. While numerous individual cases would end in tragedy, generally the species would be expected to survive without reproductive care. On the other hand, to the extent that our main societal objective is to assure the integrity as well as survival of each individual, it becomes clearer that medical intervention has a very important role in reproductive care. Part of the current debate over future directions must address the fundamental issue of our societal objectives in reproductive care.

IV. HEALTH CARE

The Traditional System Described

The traditional health care system in Ontario is physician-centred and can be described in the following terms:[19]

> Physicians have been considered the most competent health professionals to serve as the patient's primary contact: they have been educated to understand the whole patient, the family and the social environment as well as biological systems; they possess diagnostic skills and can use laboratory tests to identify and assess a broad range of problems; they are trained to select the most appropriate therapy from a wide range of treatments; they have thus been assumed to be in the optimal position to balance and adjust the treatment to achieve and maintain the patient's return to health.
>
> The attending physician:
>
> (a) is the principal source of advice on both minor and major health problems;
>
> (b) provides the focus of continuity of care and assumes the direction of that care throughout the patient's illness;
>
> (c) is the top of a pyramid of accountability and responsibility to the patient for the care received. Some of this responsibility can be delegated to other trained health care personnel.
>
> The professional doctor-patient relationship includes elements of friend, counsellor, and personal advocate for the patient. Education and counselling beyond that provided by the physician personally is available through many other professional and non-professional groups.

The family physician has hospital admitting privileges and access to specialized medical and surgical consultation for the patient.

Hospitals have various policies and practices to ensure efficient functioning, patient safety and medical accountability, and are staffed with nursing, administrative, technical and support personnel who contribute particular skills to the care of the patient in that institution. Since 1918 a hospital accreditation program has encouraged all Ontario hospitals to operate in a consistent and progressive manner.

Evolution in Health Care

This system evolved to meet specific needs of the vast majority of citizens and health care providers. What traditionally were these needs and do they still need to be considered as a priority? Are we seeing a breakdown in the ability of this model to satisfy an increasingly knowledgeable and heterogeneous population in terms of meeting the health care needs of patients with different cultural, religious, philosophical views towards health and medical care?

Public Health policies and hospital practices are designed to protect the majority, and we should not lose sight of these benefits. In providing these benefits to the majority, they may infringe legitimately on the rights of the minority, and they may also infringe on the unique needs of an individual patient. We do have a responsibility to ensure that any swing in the pendulum to satisfy a particular group of consumers does not increase the risk for the majority of our patients.

Should we look more closely at the established mechanisms through which the profession ensures that medical education and practice remain responsive to changing patient needs? In this regard, what is the availability of role models for physicians in training? Their presence or absence will influence the eventual practice decisions of new graduates about style and content of practice.

CONCERNS FOR DISCUSSION

1. **What were the needs of the majority of citizens that the present health care system evolved to meet?**

2. **Do all these needs still need to be considered a priority? Are there new needs which should be recognized as a priority?**

3. **How can a system designed to meet the needs of the majority also be responsive to a minority without jeopardizing the rights of the majority?**

V. REPRODUCTIVE CARE

The Traditional System Described

The traditional provision of reproductive care by physicians reflected the overall development of the health care system. Its elements were as follows:

- The family physician provided the focus of continuity of care before, during and after pregnancy.
- The physician's objective was to assist the mother through the pregnancy and to facilitate the birth of a healthy baby. The physician's assessment and counselling priorities were geared primarily to this objective.
- The G.P. had obstetrical privileges and personally carried out the hospital delivery.
- The obstetrician provided specialized care for high risk obstetrical patients and cared for a variable proportion of pregnant women with no identifiable risk.
- The paediatrician provided specialty care for the sick newborn and primary care for a variable proportion of healthy newborns.
- Hospitals provided facilities for birth and had policies and routine practices to ensure efficient functioning of the hospital and safety of patients.
- Traditionally prenatal classes were run by the health units and co-ordinated by physicians in the hospital.
- The family provided support up to hospital admission where labour room (medical, nursing) staff took over under the physician's supervision.

The regionalized program for perinatal care in Ontario is a refinement of the system of referral that has traditionally existed in this province.

Evolution in Reproductive Care

It was assumed, perhaps incorrectly, that this traditional pattern of medical practice had more or less met the needs of a heterogeneous Ontario population including the following groups with quite different needs:

(a) Pregnant women without identifiable risk;

(b) Pregnant women at risk (low, medium or high);

(c) Urban populations;

(d) Rural, rural/urban populations;

(e) Ethnic populations including native people;

(f) Those holding different views from the majority on their requirements or needs for medical care and the responsibility of the medical community to meet their needs, e.g. Jehovah's Witnesses, women desiring home births.

It should be noted that this traditional approach has given Ontario a very low, direct maternal mortality rate and a perinatal mortality rate that is improving but still high enough to be a priority for improvement in the future. In other words, the above approach has been a proven effective system delivering safe obstetrical care for Ontario citizens.

TABLE I

DIRECT MATERNAL MORTALITY RATE/100,000 LIVE BIRTHS

ONTARIO	
1958	41.26
1960	33.20
1970	14.90
1980	4.80
1982	2.40

SOURCE: O.M.A. Committee on Maternal Welfare - Reports to Council.

TABLE II

PREGNANCY OUTCOMES, BY RATES*
ONTARIO: 1971 - 1982
(Source: Registrar General, Vital Statistics Reports)

Year	Stillbirth Rate 28 weeks +	Neonatal Mortality Rate 28 weeks + 7 days	Perinatal Mortality Rate 28 weeks + 7 days
1971	9.2	9.6	19.1
1972	9.2	9.9	19.2
1973	8.3	8.8	17.0
1974	8.2	8.2	16.4
1975	7.2	7.9	15.2
1976	7.7	7.5	15.3
1977	6.8	6.7	13.5
1978	6.3	6.5	12.9
1979	5.9	6.1	12.1
1980	5.5	5.4	10.9
1981	5.2	5.1	10.3
1982	5.3	4.7	10.1

* Per 1000 live births.

THIS RECORD OF PROGRESSIVE IMPROVEMENT SUGGESTS THE SYSTEM SHOULD EVOLVE CAREFULLY AND SLOWLY. ON THE OTHER HAND WE RECOGNIZE SOME DANGER THAT PAST SUCCESSES MAY TRAP INSTITUTIONS, PROFESSIONS, SPECIALTIES, AND INDIVIDUALS INTO FIXED PRACTICES AND MODES OF THOUGHT.

What are the characteristics of the traditional system and the traditional role of the physician that have served and will continue to serve the public well, e.g. the team approach to obstetrical care? What characteristics of this system could be changed and thereby improved?

Evaluation of Outcome

Medical practice will inevitably change over time for a variety of reasons. What mechanism does society have to be sure that these changes keep the safety of mother and fetus in balance with the psycho-social needs of the pregnant patient? In this regard, when should emphasis be placed on carefully designed studies to examine the outcome of new patterns of service which are likely to make an impact on obstetrical care?

A fuller assessment of this model might consider indicators of effectiveness other than maternal and perinatal mortality, e.g.(1) morbidity; (2) consumer satisfaction; (3) whether the needs of each distinct "high risk" group in the population are being served equally; (4) long term career satisfaction of providers within the current system, e.g. nurses, physicians, other personnel. What indices should we pick to measure morbidity, consumer and provider satisfaction? If we can agree on the indices, how do we go about measuring them? Unless we can establish a review mechanism for perinatal mortality and morbidity, e.g. developmental handicap, and thus monitor and ensure patient safety, it is somewhat hollow to refer to patient satisfaction as the only focus of concern.

Conflicting Rights

We are also beginning to see claims for dual medical-legal rights and new responsibilities, one set for the mother and an increasingly well-defined set for the fetus. There is a growing need to discuss how we are going to resolve social conflicts between the rights of the mother and the rights of the fetus and newborn. Quite separately, appropriate and useful medical care for the fetus will require the mother to assume some risks without any benefit to herself since for some procedures she is the only route to the fetus, e.g. evaluations through amniotic fluid taps, fetal heart rate monitoring, blood transfusion, administration of antibiotics, etc. Whichever way we expand or change perinatal care, the change should not be in any way at the expense of the fetus or the newborn (healthy or handicapped), who is in no position to advocate for themselves.

CONCERNS FOR DISCUSSION

1. **What are the rights of the fetus and the newborn, if any?**
2. **How can we resolve conflicts between the rights of the mother and the rights of the fetus and the newborn?**
3. **What mechanism is there to ensure that any changes keep the safety of the mother, fetus and newborn in balance with the psycho-social needs of the pregnant woman?**
4. **Can the co-ordination of services and the team approach to reproductive care be improved?**
5. **How is education about reproduction being carried out, and is there a need for better co-ordination in the future?**

VI. MEDICAL PRACTICE - TRENDS IN ONTARIO

Physician Training

We should intensify discussions about the future role of the physician with an eye on just where physicians seem to be going in fact. There is some indication of a trend in physician training towards developing a "biological scientist", a resource person on anatomy and physiology who leaves the role of being "the family friend and advisor" to other health personnel. While this may or may not be cost efficient, it would seem to change the physician's contribution to health care and have implications for the role society sees for physicians.

Some medical schools seem to aim at turning out physicians who deal with people as would a medical scientist. While the public wants physicians to utilize scientists in delivering and improving medical care, they do not seem to want them to be scientists.

The scientific product of our medical schools may be one reason for the traditional emphasis on mortality statistics as the chief marker of the level of health care. It is a "hard" number that can be easily and objectively measured, unlike any indicator of patient satisfaction. Physicians who are not scientists but who use scientists as a clinical resource would find improvements in mortality rates and satisfaction of equal importance over the long term.

The Role of Family Physicians in Hospitals

There are pressures on family physicians in large urban hospitals to limit their involvement in the traditional areas of emergency department work and assistance at surgery. This trend will only serve to isolate the general practitioner into an office practice, which is not what medical leaders see as good for the patient, family practice, long-term professional satisfaction, or physician continuing education opportunities.[3,21] Failure of G.Ps. to retain hospital privileges will have some long-term impact on patterns of G.P. practice.

Medical Lifestyle

Do new incentives need to be introduced to draw G.Ps. into a hospital role in urban hospitals? What does the profession and the public lose if G.Ps. increasingly give up major involvement in all aspects of hospital care? One traditional G.P. role in hospital is a personal patient advocate vis-a-vis the "system". If G.Ps. move away from involvement in hospitals or involvement in hospital obstetrics, who will be the patient's advocate? Even if G.Ps. retain a strong hospital presence, if their role is more like a "biological scientist" there will still be a patient advocacy void to fill.

There is a desire by increasing numbers of physicians (G.Ps. and Specialists) for a less demanding practice in terms of unpredictable intrusions into leisure and family time. Predictably, this will serve to further fragment medical responsibility over the whole episode of the patient's illness and raise the profile of various mechanisms of off-call coverage.

Nurse Practitioners in Medical Practice

There may be a growing basis to explore the use of specially trained nurses or other allied health personnel to work with the physician and provide selected patients with some assured focus of continuity through their illness. If nurse-practitioners are utilized more widely and other patterns of obstetrical health care evolve, perhaps physicians have a unique contribution to make as a "co-ordinator" in health care?

Trends in Medical Liability Expenses

Recently the costs of malpractice protection have started to follow U.S. trends and are rising significantly in Canada.[22] Where G.Ps. can avoid major C.M.P.A. dues by shifting their work into clinical areas where the C.M.P.A. fee is less, this increased cost may have a very real impact on G.P. patterns of practice. This is not so of specialists, although they too will experience changes in C.M.P.A. fees as an additional expense of medical practice. Ultimately will it all come back to the public in terms of less accessible health care, and increases in premiums or taxes?

Remuneration for Medical and Surgical Care

While it is now much reduced, historically there has been a greater emphasis on the procedural approach to health care and on procedures in the O.M.A. fee schedule in contrast to the fees that are only for patient evaluation, observation and counselling. Second, all fees are now set at a level which reflects the additional training and expertise required to carry out the procedure, whether or not the procedure has significant therapeutic stature. In the future the costs of malpractice liability protection will have an increasingly significant impact on the structure and level of O.M.A. fees. Is it time to start rethinking the process of remuneration for reproductive care?

CONCERNS FOR DISCUSSION

1. **If the family physician is trained as a biologic scientist, is he still seen as the individual's friend and advocate? To be the latter, does he need the rigorous training of the former?**

2. **Should the traditional measures of health care, such as mortality and morbidity, continue as markers of satisfactory care? Should new indices of psycho-social wellbeing be included, and if so, what should be their priority?**

3. **Do new incentives need to be introduced to draw G.Ps. into a hospital role in urban hospitals?**

VII. REPRODUCTIVE CARE - TRENDS IN ONTARIO

Turning to the more specific area of reproductive care, there are a number of trends shaping the provision of reproductive care in Ontario:

Fetal and Neonatal Wellbeing

There is public pressure on physicians to ensure that each child is born in perfect health almost to the point where families seem to feel this outcome can be guaranteed. Neonatal outcomes that were accepted as normal or inevitable even a few years ago are now felt to be unacceptable to the public. Moreover there is greater medical recognition that even some of these outcomes can now be changed by medical intervention. All these factors have caused increased pressure on physicians to intervene earlier, which is reflected in increased fetal monitoring and C-section rates, and in the emphasis on having the necessary facilities and equipment readily available (i.e. an in-hospital birth).

Regionalization in Perinatal Care

Regionalized perinatal care was designed with the following points in mind:[20]

- Presently, the principal burden of reproductive mortality and morbidity, such as handicap, accrues to the fetus and newborn, not to the mother.

- Major, fundamental advances have occurred in scientific knowledge concerning fetal growth and development.

- Changes in service organization are required for this new understanding to reach patients in day-to-day medical practice.

- Emphasis on the concept of risk and its identification, by asking the question: "What is the risk of this pregnancy ending in a fatality or handicap?" and provision of a uniform antenatal record incorporating guidelines for risk designation and response, to aid this process.

- Organization of medical resources into three hospital levels, i.e.:

    Level I - for 85% of pregnancies with no identifiable risk;
    Level II - for 12% presenting identifiable risks at a moderate level;
    Level III - for the 2-3% of pregnancies at high risk and requiring very special, rare or expensive facilities for management.

- Accurately matching the patient's assessed risk to the level of medical facilities required, and provision of a transport mechanism (and guidelines for use) to ensure safe movement of the patient if indicated within one of 5 organized geographic regions.

Malpractice Costs

Unfortunately, misfortune as opposed to either malpractice or negligence is often the underlying cause related to handicaps of perinatal origin. The courts seem to be adopting the principle of liability without fault and they make extraordinary attempts to share the financial burden among as many parties as possible.[23] Is there an appropriate alternative to the current litigation system as a means of support for such children? There are suggestions in both the U.S. and Canada that we should consider developing a no-fault compensation fund for this purpose.[24, 25]

Shared Care

More family physicians are undertaking shared care, i.e. prenatal care only with delivery carried out by an obstetrician.

Birth

OHIP data showing an increase in the number of obstetrical deliveries by specialists and a decrease in obstetrical deliveries by G.Ps. supported by anecdotal information, is suggestive evidence that new G.Ps. are moving away from doing obstetrics as part of normal family practice.

TABLE III

OBSTETRICAL DELIVERIES - ONTARIO

Year	Total Number	% by Ontario Specialists	% by Ontario Family Physicians
May 1977 - Apr 1978	119,942	54.8	45.2
Jan - Dec 1979	119,346	58.1	41.9
Jan - Dec 1980	120,999	59.9	40.1
Jan - Dec 1981	119,881	61.4	38.6

SOURCE: OHIP DATA.

The above represents increasing fragmentation of medical responsibility for the whole episode of pregnancy; it also represents increasing fragmentation of the continuity and comprehensiveness of G.P. care for families. The fragmentation of obstetrical care can occur in many ways, e.g. between family doctors and specialists, doctors and allied health workers, dietitians, natural childbirth classes, etc., and rotation of coverage by doctors. More obstetricians are starting to sign out to a group which will provide a 24-hour on-call physician for deliveries, etc.

It must also be recognized that the introduction of learners (nurses, interns and residents) into the system also provides another mechanism for fragmentation of obstetrical care.

Family Practice

The above suggests that there may be fewer G.Ps. who see normal obstetrics as an integral part of family practice. Some will give up deliveries at off hours, others will give up deliveries completely. There will be greater emphasis on G.Ps. doing only out-of-hospital prenatal care. The traditional role of a comprehensive obstetrical service widely available through G.Ps. in this province is changing.

The unique service offered by the family physician must also be changing: traditionally, a long-standing, one-on-one relationship with a patient, based on mutual confidence and familiarity, is the relationship that has served as the foundation for meeting the woman's medical and psycho-social needs throughout a pregnancy.

Allied Health Personnel

There are many suggestions for trials with specially trained nurses or other allied health personnel to complement general practitioners or specialist obstetricians where the patient has no identifiable risk and to provide selected women with at least this continuity throughout the entire episode of pregnancy. Does the family physician or obstetrician still have a unique contribution to make and an interest in being a "co-ordinator" of reproductive care whether or not there is more advanced obstetrical training for nurses and whether or not other patterns of health care delivery emerge? If this role of co-ordinator is not of interest to G.Ps. but makes an important contribution, should someone else fulfil it?

Family Physician Training

There are as well two unique types of G.P. practice in obstetrics which should be considered:

(a) Obstetrical care in remote communities where the G.P. must be ready to do forceps deliveries, breech deliveries, and perhaps even Caesarean sections as well as having some training in high risk pregnancy problems. Some think this role requires at least 6 months' training or perhaps even longer.

(b) Urban practice where much of the obstetrical care is shared and the G.P. needs a good grounding in prenatal care and identification of risks, family centred care, postnatal care, breast-feeding, infant care.

It may be that these types of obstetrical practice should be addressed separately at this point in time and the question of recognizing special competence to carry out these different types of practice should be considered. This is particularly pertinent in view of the current medico-legal position taken by C.M.P.A.

It appears from the above that we will see increased scrutiny of G.P. obstetrical privileges. This will raise pressures on some of them to withdraw which, if this happens, may result in foreseeable disruptions in obstetrical care for a community.

CONCERNS FOR DISCUSSION

1. **In the current system, are the economics of reproductive care unduly geared to the moment of delivery?**

2. **What is the role of the family practitioner and obstetrician in the future delivery of reproductive care? Should the role vary according to geographic region?**

3. **What is the appropriate training for G.Ps. involved in obstetrical care?**

4. **What will be the effect of C.M.P.A. increases on fragmentation of care?**

5. **Is there an appropriate alternative to the current litigation system as a means of support for handicapped children?**

VIII. NURSING

Nursing Associations generally are advocating that nurses look at the needs of patients and the skills that nurses as professionals bring to patient care, and define for themselves new roles they should play in the health care system. Many nurses are reluctant to serve as only an assistant to the physician in patient care. Nursing Associations wish nurses to have an expanded role in directly serving the needs of patients as defined or perceived by nursing.[8, 26] It is crucial to positive productive dialogue for nurses to be clear whether they wish to expand their responsibilities by building on nursing skills or by incorporating medical procedures, and whether their goal in reproductive care is to establish a better qualified team member and/or a new independent practitioner.[27]

CONCERNS FOR DISCUSSION

1. **Should there be a single professional focus of responsibility and accountability for the health care received by members of society, and if so, should this continue to be the physician?**

2. **If there is to be a change in responsibility and accountability amongst health care professionals, how and by whom can such a process of delegation be accomplished and still protect the welfare of the individual in society?**

3. **If there are multiple foci of responsibility for health care, will this help or hinder the individual's ability to understand and be a responsible participant in the health care received?**

Reproductive Care Nursing

Reproductive care nurses see an expanded role for nursing in providing primary care for the pregnant woman with no identifiable risk, e.g.:

1. Antenatal and birthing care.
2. Counselling.
3. Being available for minor complaints.
4. Parent education.
5. Labour coaching.
6. Care of the infant.

They see physician activities in these areas as an inefficient use of their training and skill, and feel it is more cost-effective for nurses to be doing some of this work.

It is recognized that in recent years, ever-increasing demands have been placed on nurses due to modern developments in obstetrical care. Thus reproductive care nurses may be required to provide highly skilled nursing care for high risk mothers and babies, frequently involving intensive care situations, and at the same time they must provide family centred maternal-infant care with special attention to the emotional support of the family during childbirth. At times nurses find themselves in conflict with the desires of a pregnant woman and her family for natural childbirth without recourse to modern obstetrical aids.

Community Nursing

Increasingly early discharge and follow-up by community nursing is a development of interest to some women. Do public health nurses have the skills for this work? One needs to ensure nursing skills in the community for follow-up if early discharge is a program a hospital wishes to offer its mothers. This kind of routine nursing follow-up is being considered as a potentially useful preventive program in the child abuse field.[28]

Community nursing has an expanded responsibility under Ontario's new Health Protection and Promotion Act, 1983. Guidelines for the Act will require health units to provide:

(a) childbirth education classes to begin in the first trimester and include one post-partum class;

(b) community outreach to improve referral to and from physicians, hospitals, social agencies;

(c) home visits prenatally and postnatally for the high risk mother/infant through referral, to monitor care or client and help to identify risks.

Malpractice Costs

Elsewhere in this paper the theme of malpractice has been mentioned. Given current pressure towards ever higher settlements in cases of childbirth injury, and the increasing cost of malpractice insurance for those providing reproductive care, how is the physician expected to react to the suggestion that he should delegate obstetrical responsibility to nursing staff, yet retain both the supervisory role and responsibility for outcomes? The greatest objections to the introduction of this "new" component to obstetrical care will arise from this issue. How will the nursing profession cover its own liabilities if it adopts an independent obstetrical role of increased involvement and responsibility for the patient? What will be the mechanism of accountability and liability? These issues need to be considered so that their implications may be clarified.

CONCERNS FOR DISCUSSION

1. **If G.Ps. move away from involvement in hospitals and obstetrical care, who provides continuity of care and acts as the patient advocate?**
2. **If the obstetrician is going to be responsible for pregnant women, is there a need for a new member of the team to replace the G.P.?**
3. **If nurses are visualized as having an independent role in health care, what is the mechanism of accountability and legal liability?**
4. **Do public health nurses have the right skills and training for an expanded role in childbirth education or pre- and post-natal care?**

IX. SOCIETAL ISSUES

There are social and health care movements that form a wider context for any discussion of the evolution of reproductive care in Ontario. Physicians should be aware of these issues to the extent that they are driving and influencing the direction of public discussion of specific issues in reproductive care.

Is it essential for the profession to mount a fairly in-depth inquiry as to whether the dissatisfaction expressed by some obstetrical patients specifically relates to the present delivery system of obstetrical care, or whether it is part of a much wider dissatisfaction with the role of the health care providers in this province? We should be examining whether these attitudes are the result of a general, social change occurring around us with respect to the changing expectations of society regarding the medical profession, among other professions.

Society and Health Care Movements

Consumerism

An emphasis on representing and protecting the interests of consumers vis-a-vis the interests of all other participants in the market-place. It presumes significant differences in perspective as to what is in the interests of the consumer and sometimes a frankly adversarial relationship between consumers and providers. The courts are used to redress grievances and to support the rights of the consumer.

Trends are changing, the public is better informed and more consumer oriented than ever before, yet questionable information and misunderstanding abound. The Canadian medical profession has always professed the highest ethical standards and set the patient's welfare as paramount. Were this tradition acknowledged, of course, it would require a responsible person to seriously consider the profession's advice and concerns about directions in health care. As public spokesmen and the media increasingly attribute narrow self-interest to whatever the profession says, they convey the message that medical concerns are of no real substance in terms of patient care and can be ignored. Attacking the integrity of the profession instead of the issues does the public and patients a disservice. It discourages serious examination of all viewpoints on important health issues, it fans the flames of discontent, and it undermines public trust in the medical profession to the detriment of patient care.

"Holistic" Health Care

This movement expands the concept of health to include positive wellness rather than denoting only the absence of treatable illness. Positive "wellness" includes such things as vitality, joy, physical fitness, no health-impairing habits, meaningful and productive work, a profound love relationship, and productive responses to tension and stress.

The "holistic" health care provider looks at the whole person, mind, body and spirit, improvements in wellbeing and wellness along the lines of the World Health Organization's definition of health. The practical focus is on basic living habits plus environmental factors relating to all dimensions of the personality for total health improvement. It avoids a piecemeal approach to health care and a treatment focus on the immediate presenting problem. It emphasizes individual responsibility for one's health.[29, 30, 31] The O.M.A. Committee on Medical Care and Practice has studied these claims and feels the public of Ontario should be made aware that all Ontario physicians are trained in the comprehensive care of the whole patient, i.e. to carry out a "holistic" medical practice. Where this is neglected, the practice of medicine falls short of its own traditional standards. Unfortunately, consumers may state that it is hard to find a physician who practises "holistic" medicine.

Natural Therapies and Therapists

There is a wide variety of practitioners offering "natural" approaches to patients' complaints. They emphasize health promotion and natural means to maintain health.

Their first line of treatment is to utilize or augment the body's own natural healing powers and to use natural substances as an adjunct. They offer a variety of alternative approaches to drugs, surgery and other interventions of medical science.

Natural therapies and therapists often have a unique, and sometimes not very scientific, causal theory of disease and therefore utilize unique diagnostic tools. They emphasize health promotion and natural means to maintain health.[32]

It should be noted that some "natural" approaches are not natural and in fact may do some harm.

Patients' Rights and Medical Paternalism

There is currently an emphasis on patient autonomy and control over the pace and direction of medical intervention - and a need to counter what some see as excessive paternalism in the medical profession, not only in the narrow legal context of insistence on more informed consent but particularly with respect to some patients' desires to receive additional counselling and education about their condition from health professionals. Patients are more assertive about refusing to accede to hospital medical "routines" when these impinge on individual dignity or detract from achieving personal growth or satisfaction from important life-events. There is greater value being attached to the area of informed responsibility for self and to MD/patient communication.

The majority of women seem comfortable and satisfied with the health care they received or are receiving. Professional discussion of the evolution of reproductive care in Ontaric should not interpret current complaints as either reflecting the feelings of the majority of women or even reflecting blanket dissatisfaction with the entire system of health care.

Societal Issues and Obstetrical Care[33]

Some women are putting very strong emphasis on the episode of pregnancy as an opportunity in life to personally grow and experience to the fullest a basic aspect of their femininity. Their fundamental need seems to be to find health professionals or knowledgeable experienced people who don't just share these values but who are committed as a priority to helping the pregnant woman achieve the kind of experience she wants within mutually acceptable limits of safety. This kind of patient often seems to feel that no matter how accommodating or sympathetic the hospital personnel and her physician are to her feelings, she basically can't trust them to really be committed to minimizing medical intervention at birth and to enhancing her non-medical values.

The challenge to the health care system from this group of women is to establish within the system teams where this kind of commitment can flourish and be guaranteed without the need to compromise basic safety standards for the mother and child. One question this paper raises is whether we need a new type of personnel within the system to achieve this goal. If so, where should they come from and what training, regulation and work relationships with physicians are required?

From a reading of professional and non-professional literature, the following concerns are being expressed by some obstetrical patients:

Women experiencing a pregnancy at no identifiable risk have unmet needs for -

(a) continuity of care;

(b) education and counselling;

(c) more readily available advice on minor problems during pregnancy;

(d) more communication from their physician; greater need for a partnership role and to be in control of, or at least involved in, medical intervention and other events.

Some of these unmet needs seem particularly acute in the low risk, young woman pregnant for the first time. By "control", some patients seem to be just asking health professions to recognize them as adult, mature and responsible individuals who want to be involved in decisions about their health care. Other patients feel more strongly about being able to decide and guide the pace and direction of medical events. With "control" in this latter sense goes, of course, ultimate responsibility for the decisions taken. Do these patients appreciate prospectively the responsibility they are taking and how their decisions can and may affect the fetus? For example, where there is conflict between the patient's desires and the health interests of the fetus, whose rights should prevail? How are such conflicts to be resolved in an emergency without the physician being responsible for making the final judgment?

In some areas, the need for improved maternal/child care is quite clear, e.g.:

(a) more hospital prenatal classes co-ordinated with what actually happens;

(b) improved and personal environment in the labour room;

(c) broader family (sibling and spouse) involvement and support through the whole episode of pregnancy;

(d) breast-feeding promotion;

(e) greater access to rooming-in facilities;

(f) flexible visiting hours in newborn nurseries;

(g) parenting classes and support literature.

Patient dissatisfaction with traditional hospital practices might be less of a problem if there was a safe alternative system in place. Some women are ending up in unsafe home birth situations because, for them, suitable alternatives are not available. On the other hand, we can't assume that total patient satisfaction will folow invariably from the introduction of new or alternative approaches to reproductive care. We should not be naive and make changes in the hope that with change all patient complaints will disappear.

There is no clear focus of advocacy and attention in the current hospital medical care system to initiate, encourage and facilitate change in the system to meet the non-medical needs of the low risk pregnancy. Physicians who are quick to take leadership positions for medical issues seem less interested in becoming leaders in matters outside their particular focus on pathology, physiology, and concern for patient and fetal safety. This decision on the part of physicians is no doubt an accurate reflection of their responsibilities and priorities but there is still a vacuum here that needs filling. Moreover, depending on the professional direction taken by family physicians, they may evolve into a type of medical practice that would still make them unsuitable or unavailable for leadership in this area.

How do These Health and Social Trends Emerge in Obstetrical Practice

- Childbirth is an opportunity for personal development and growth.
- Interest in family centred maternity care.
- Interest in natural childbirth, home births and alternate birthing centres, individual responsibility and control over the birth experience.
- Public expectations about the outcome of pregnancy, taking for granted that every baby will be assured of being well born in this current climate of the success of science.
- Perception of some women that the hospital birth environment, its practices and policies related to obstetrics, are shaped by a medical profession, senior health administrators and board of directors who, within wide boundaries of patient safety, are not responsive enough to the individual priorities of some women.
- Probably increasing use of the Charter of Rights to challenge situations where patients feel the hospital or physicians have infringed upon their rights.[34]
- Increasing legal and public awareness and discussion of the rights of the fetus versus the rights of the mother.

CONCERNS FOR DISCUSSION

1. **Why are some people dissatisfied with the present delivery system of obstetrical care?**
2. **Is this dissatisfaction a specific area of complaint or a reflection of a more general dissatisfaction within the health care system?**
3. **What objective indices could be agreed upon to adequately reflect consumer and provider satisfaction?**

X. NEW MANPOWER; ECONOMICS AND PATTERNS OF PRACTICE IN HEALTH CARE

Health Care

Method of Funding

One disincentive to innovation in the delivery of health care services is the recognition that new, alternative modes of funding would be required for implementation. For example, introducing a nurse-practitioner may be of interest to a small fee-for-service medical practice, but the cost of salary and supervision may be too much for the practice to bear under O.M.A. fees and billing principles alone. If the nurse-practitioner could generate fee-for-service billings or if the Ministry made available to solo medical practices a capitation allowance or small global budget for this purpose, physicians might be stimulated to experiment with a number of innovations in health care delivery including a variety of medically trained non-physicians (assuming they can deliver a needed service that the M.D. does not offer).[35] Introducing a variety of funding alternatives to fee-for-service would be one way to diversify the types of services and skills available within the health care system and ensure good working relationships between all those working in the field, medical accountability, adequate medical monitoring and availability.

Evolution of Personnel

In thinking about the need for new manpower, it may be helpful to outline some of the reasons for new allied health personnel to develop in conjunction with changes in medical practice; "new" in the sense of -

Brand new allied health fields of activity;

Significant expansion of existing personnel functions;

New M.D. allied health worker teams for new areas of medical practice

1. TO IMPROVE THE PERSONAL EFFICIENCY OF A PHYSICIAN

Mechanism - delegate the carrying out of a specific procedure that members of other disciplines can be trained to perform.

Example - orthopaedic technicians in hospitals.

2. TO IMPROVE THE EFFICIENCY OF THE MEDICAL PRACTICE AS A WHOLE

(a) Mechanism - to identify and delegate a new function to established nursing roles.

Example - the triage nurse in the emergency department.

(b) Mechanism - delegate specific medical acts to nurses.

Example - the office nurse-practitioner.

3. TO WORK WITH NEW TECHNOLOGY IN THE HEALTH CARE FIELD

Example - ultrasound technicians.

4. TO EXTEND LIMITED PHYSICIAN RESOURCES OUT INTO THE COMMUNITY

Example - advanced life support training of ambulance attendants involving medical acts for pre-hospital care programs.

5. TO ENABLE THE PHYSICIAN TO PRACTISE IN AREAS OF SPECIAL INTEREST

Example - physiotherapist for a sports injuries clinic.

6. TO DEAL WITH HIGH RISK PROBLEMS REQUIRING SUBSTANTIALLY HIGHER LEVELS OF ASSESSMENT AND MANAGEMENT SKILLS IN THE NURSING STAFF

Example - I.C.U. nursing, C.C.U. nursing, perinatal I.C.U. nursing, renal dialysis nursing.

7. TO MAKE IT EASIER FOR PATIENTS TO CONTACT THE HEALTH CARE SYSTEM

Example - allied health personnel in Health Service Organizations and Health Centres, and nurse practitioners employed in solo or group medical practice.

CONCERNS FOR DISCUSSION

1. **Does the present system need any fundamental changes, or should we focus on adding innovations to the status quo?**

Reproductive Care

Obstetrical Nursing Care

Although the need for educational programs in maternal/neonatal nursing in Canada is clearly present today, it is likely that such programs will only be developed slowly in Ontario in view of the financial restraints which are currently placed on both the health care and educational systems. Present demands for upgrading of nursing skills will likely continue to be met through hospital-based orientation programs, including the development of innovative programs which lead to more and more delegation of medical acts including the care of women during the birth process itself.

The low risk woman who wants "natural childbirth" needs considerable support, training and constant attendance at labour. It is increasingly being recognized that nursing low risk patients may be just as demanding as nursing high risk patients in terms of the amount of emotional support required. This area of obstetrical nursing, just as much as high risk intensive care nursing, may be a source of "burn-out" in obstetrical nurses. It is a very different kind of exercise from nursing the sick patient, and Ontario's obstetrical nurses would certainly benefit from extra training in this area. Physicians should begin a dialogue as to whether additional training or an expanded role for nurses is appropriate or whether there is a need for some additional new manpower. Does our health care system need to develop a new program or service to be available for this type of pregnancy?

Midwifery - Definition of Terms

The following terms describe various types of personnel involved in this field:

- "Labour coach", "lay birth attendant", "lay midwife" - these terms refer to the traditional experienced women without formal training. Their focus is attending at labour.
- The role of the lay birth attendant must be limited to personal support and encouragement rather than to medical or nursing acts. Any advice such a person provides to the woman in labour, including breathing instructions, must be supervised by a trained attendant who understands the physiological implications of such advice.
- "Midwife" - this term is used to describe a graduate of an officially recognized program in midwifery.
- "Obstetrical nurse" - this is a nurse in a hospital with on-the-job experience with obstetrical patients but no special formal post-graduate training.
- "Nurse midwife" - this is a diploma/registered nurse with advanced formal training in midwifery.
- "Certified physician assistant", "surgical physician assistant" - this is a person who is not a nurse but who has taken formal training to carry out advanced medical or surgical procedures.
- "Nurse practitioner" is a nurse with training beyond the traditional role of the nurse and within the accepted functions of physician who deals with a range of primary care problems, not just obstetrical problems.[II] This is normally done under the supervision and direction of a physician.

New Obstetrical Personnel[36]

The term "midwife" covers not only those who just help women give birth at home but those who care for the pregnant woman and newborn through the whole episode of pregnancy. It is not a very specific term and when used it may refer to a lay person with no formal training, a registered nurse, or someone with specific training from a special course.

The different types of midwives have been organized in various ways in order to offer their services to patients. They can be on salary in a hospital or medical clinic, doctor's office or alternate birthing centre; they can be incorporated in private practice and contract with a physician for help in obstetrical emergencies; they can be working alone in rural or remote geographic areas under general physician supervision.

The family physician has an ongoing role as provider of medical care during pregnancy. Pregnant women develop diseases and problems unrelated to their pregnancy, best dealt with by the doctor they usually see. Nurse-midwives providing antenatal care are not trained to deal with these problems.

It is perhaps unfortunate that the term "nurse midwife" suggests, at least to the general public, an individual who is qualified to deliver a baby at home without other assistance.

THE PERINATAL COMMITTEE OF THE ONTARIO MEDICAL ASSOCIATION WISHES TO MAKE IT CLEAR THAT IT STRONGLY DISAPPROVES OF ANY FORM OF MATERNAL/CHILD HEALTH CARE WHICH IS UNDERTAKEN IN ISOLATION FROM THE GENERAL HEALTH CARE SYSTEM.

Even in countries where nurse midwives practise legally within the health care system, they function most effectively as part of a health care team with the other facilities in the system fully available at all times. Maternal/-neonatal nursing, in common with many other types of health care, requires a team approach in which the nurse plays an important and vital role. This team approach applies to doctors, nurses and any other member of the health care team. The idea that a "nurse midwife" will provide independent health care for both mother and baby throughout pregnancy, labour and birth and the postpartum period is not compatible with today's approach to health care.

We should probably note that Canada is one of the few members of the W.H.O. without an organized midwifery service as part of its health care delivery system. This fact by itself doesn't establish the need for midwives but it does stimulate one to think why urban Canada should be so different and to identify how the customary needs met by midwives in other countries are being satisfied in Ontario. In thinking about this we may or may not find good arguments for the introduction of midwives but it will help clarify future directions in health care delivery.

If introduced without great caution, data about midwives from the United Kingdom and elsewhere will lead to erroneous conclusions. The reported decrease in the number of midwives and the increase in hospital deliveries are two entirely different areas, neither of which argues against the involvement of the midwife in obstetrical care. The way some people use the U.K. data only demonstrates their lack of understanding of the U.K. obstetrical system and its trends. Many international comparisons are of very limited application to the Ontario model and if we use them we must be careful to specify the presumed conclusions. In the international obstetrical forum the role of midwife both in and out of hospital is extensive and the Canadian experience is atypical.[37]

Canadian "Midwives"

There are at present well trained obstetrical care nurses in Canada. Three provinces (Newfoundland, Nova Scotia and Alberta) have programs which include preparing nurses for outpost obstetrical care, and other centres are planning further development of the nurse midwife role. Some nurses may have in fact better formal training in the care of normal childbirth than recent graduates from medical school whose training in obstetrics may be limited to a few weeks.

Nurses who have received special training in order to provide obstetrical care in rural or remote areas, who subsequently return to populated areas find that they can no longer exercise the same degree of skill and responsibility. They certainly represent a reserve of talent that might be better utilized within the system.

Future Developments

If the family physician is withdrawing from normal obstetrical care, would the choice of accoucheur then be between a specialist obstetrician and such a nurse midwife, or a team comprising both? Should the answer differ for different geographic regions?

Given the trends and changes in traditional obstetrical practice, or given a consensus as to beneficial future developments, do O.M.A. members see a need to develop new manpower in any of the senses described earlier? If so, would "nurse-midwife" be a useful and accurate way of referring to the type of personnel required? The issues one would address here are similar to those raised by the nurse-practitioners - would a nurse practitioner midwife be of help to the G.P. in dealing with office obstetrics. Would the nurse practitioner midwife be a useful development around which to organize the variety of nurses associated with obstetrics and newborn care? Would nurse practitioner midwives attached to public health units do a better job of prenatal counselling, education, the conducting of prenatal classes? Would advanced obstetrical training for nurses in hospitals be a positive force in the development of family-centred hospital policies around the birth and newborn care? Positive interest in any of these questions would suggest the concept of nurse-midwifery might have a role in future obstetrical practice.

CONCERNS FOR DISCUSSION

1. **Is the pregnant woman at no identifiable risk receiving care from the most appropriately trained individual?**
2. **Should the answer as to who provides care, vary from one region to another?**
3. **Is there an untapped role for a nurse practitioner in reproductive care?**
4. **Are there specific needs for advanced or enhanced training for obstetrical nurses, and if so, what are they?**
5. **Does the current method of funding reproductive care have to be changed to support improvements in future practice, and if so, what are the cost and benefit implications of these changes?**
6. **Do we need an entirely new type of personnel within the system to improve satisfaction levels with current reproductive care? If so, what training and regulations are appropriate, and how would they relate to present members of the health care team?**

XI. HOME VERSUS INSTITUTIONAL CARE

Not too many generations ago in Ontario, the doctor attended ill family members at home, performed surgery in the patient's home, childbirth occurred at home, parents grew old and died at home. The rise of the modern hospital was coincident with improved knowledge and tools and the potential they gave when centralized in one facility to subsequently change the outcomes of these major life events for the better. Consequently the management of childbirth with its high maternal mortality rate, serious surgical procedures, patients with serious illness, and incapacitated elderly patients, moved into the hospital. Currently there is a push to return patients to the community for care in their homes if possible. Examples are deinstitutionalization of psychiatric patients and the mentally retarded, increasing support for terminally ill patients who wish to die at home, emphasis on care of the elderly at home, home dialysis. In the absence of the traditional extended family, this trend towards home care requires various social and health personnel to support it.

Home Births

Medical Policies

The Canadian Medical Association, the College of Physicians and Surgeons of Ontario and the Society of Obstetricians and Gynaecologists of Canada have all taken a position that discourages planned home births. The O.M.A.'s position is no different, namely:

> That planned home births involve increased and avoidable risks
> to the health of the mother, foetus and newborn infant;
> That the O.M.A. strongly oppose the practice of planned home births;
> That the O.M.A. publicize these dangers to the mother and newborn.

Certainly we would like to make it clear that the issue of whether or not to introduce midwives into our health care system is a different issue from whether to sanction planned home births. While home births provide one traditional field of activity for midwives, exploration of the future role midwives might play in Ontario should not be limited only to supporting planned home births.

Philosophy

Couples who choose to give birth at home tend to have a common philosophy or belief system which includes the following:

- Childbirth is a normal, physiological event which usually proceeds to a healthy conclusion. In the absence of any prenatal or intrapartum complication, this "family event" is best to occur in the family home, and away from medical intervention. (These couples tend to hold similar beliefs about death.) Hospitals are for sick people and complicated births.

- The mother and father are responsible for the birth and its outcome, and are willing to accept the consequences of their own actions.

- It is better to be surrounded by loving family and friends during labour and birth than by unfamiliar doctors and nurses.

- There are psychological benefits to the newborn child to be born at home in a loving setting with minimum disruption of contact with the mother.

- Labour is hard work, not a fearful experience.

A minority of individuals choose to give birth at home because -

- they don't believe in western medicine and doctors;
- they have had a bad experience in hospital during a previous childbirth, most often feeling that the doctors and nurses did not take their requests and desires into account.

Future Discussion

Is there a way that we can think about some women's interest in planned home births from a medical point of view that will -

(a) see it as a clinical challenge the system will want to meet;

(b) open up a range of issues so that planned home birth isn't discussed in isolation and doesn't consume all the limited time available to discuss the future direction of obstetrical care in Ontario.

When innovations in obstetrical care are discussed solely in terms of introducing a home birth component, the ensuing discussions are unlikely to lead to a profitable exchange of ideas for the purpose of health planning. The first objective is to determine how flexible the current system is and whether change is possible, before determining that home births are inevitable.

While the medical and health community must demonstrate a sensitivity to women concerned enough to consider a planned home birth, on the other hand it must also demonstrate the same sensitivity to the majority of practitioners who hold the definitive belief that this option carries with it unnecessary risks.

Finally, it is also important to determine what degree of actual interest there is in planned home births among the population. At present in Ontario, only 0.4% of births occur out of hospital;[38] it is thus assumed that the vast majority have no real interest in delivering at home, especially if attractive alternatives are generally available in a hospital. Although individual States vary, the percentage of overall out-of-hospital births in the U.S. has remained absolutely constant at 1 per cent since 1975.[39]

Utilization and Access to Health Care

Women interested in homebirths are not the only group of concern to physicians. Access to the health care system in general may be compromised for a number of specific high risk groups. Home births may represent an additional risk for these high risk individuals who become inappropriately involved in alternative birthing approaches:

- Women in medically underserviced areas.
- Young teenagers both with and without families.

- Cultural and ethnic groups in larger centres.
- Urban poor.
- Native populations.

Other high risk groups in terms of accessibility may be those with feelings of alienation or hostility towards the scientific medical community. While we may not share their philosophical or value system, is there a way the health care system can be diversified in order to accommodate this group and at the same time ensure an appropriate level of safety for that member of society? Again, specific changes or strategies introduced to improve services for identified high risk groups must be assessed in terms of whether or not they are also asking the majority to accept a real, additional burden of risk in their health care.

CONCERNS FOR DISCUSSION

1. **How does the medical community presently respond to couples planning home births and how do these responses fit with the profession's thrust to minimize maternal-infant morbidity and mortality? E.g., in some communities the physicians as a group refuse to provide prenatal care to couples planning home birth.**
2. **Are there ways that we can get a better assessment of the relative risks to the mother, the fetus and infant in planned home birth in Ontario?**
3. **If there are increased risks to planned home birth, then how do we reduce to a minimum the number of women who feel seriously tempted to give birth at home as well as the number who take the next step and actually make plans to have their baby at home?**
4. **If O.M.A. members live in a community where planned home births occur, community-based discussion of the issues might be useful to explore alternatives within the health care system. What is the responsibility of the local society or medical staff to show this type of leadership?**

Hospital births

In any debate about the future directions of obstetrical care, do hospital administrators or trustees have a unique perspective that can be distinguished from those of the hospital staff? If not, can we for all intents and purposes treat hospital policies as extensions of views expressed by their medical and nursing staff? On the other hand, if hospital trustees have no unique area of expertise that they bring to bear on the traditional obstetrical delivery system, they certainly are interested in achieving the general hospital goals of good patient care, health promotion, efficient management and cost containment. They are interested in changes that the medical staff need for better patient care, or operational or staff changes that will save the hospital money while maintaining a high level of service, or changes that would maintain or enhance the hospital's contribution to its community.

Hospital Boards and administrators would certainly be interested in suggestions that they may need to revise their long-range goals for obstetrical care in order to better meet community needs. This discussion paper raises a number of issues that hospital trustees should be investigating with regard to improving service to their community.

CONCERNS FOR DISCUSSION

1. **How do hospital policies and practices adapt to meet the changing needs of the consumer?**

2. **Who articulates these needs or how do hospitals recognize when patient needs are changing?**

3. **Is anyone in the hospital specifically responsible for looking at hospital policies and practices with a view to the patient's experience with the hospital?**

4. **How will hospitals mediate patients' requests for individual consideration of their needs when they conflict with established hospital policies?**

5. **What is the role of the chief of staff and the president of the medical staff in this regard?**

Innovations in Obstetrical Health Care

There seem to be a number of innovations occurring which in their own way address the psycho-social interests of pregnant women without identifiable risk. They are:

- Family-centred maternity care in hospital involves a commitment from the hospital staff to introduce family-centred activities and practices that aim at humanizing and improving the quality of maternal/newborn care, e.g. prenatal classes, rooming-in, breast-feeding, fathers in labour and delivery rooms, sibling visiting, birthing rooms.[6]

- Alternative Birth Centres (ABCs) in hospitals offer a relaxed homelike setting to the childbearing couple within the safety of the hospital environment. Such centres are geographically and functionally integrated with the hospital.[40]

- Companion, coach, husband present in delivery room, whether for vaginal birth or Caesarean section.

- Allowing parents and infants to bond post-delivery.

- Breast-feeding on demand rather than at regular hours.

- Unrestricted visiting hours for immediate family in maternity unit.

- Use of birthing chairs for delivery.

- Support for non-medicated pain relief during delivery.

- Other innovations are hospital responses to growing dissatisfaction with traditional hospital practices around delivery where these practices do not have demonstrable safety impact, e.g. routine shaving, use of stirrups, routine I.Vs., routine electric fetal monitoring, no rooming-in.

CONCERNS FOR DISCUSSION

1. Do some of the present medical and hospital attitudes and procedures alienate people so that they will choose to opt for birth at home? If so, what are these attitudes and procedures, and how might they be modified to be more respectful of the couple's wishes?

2. While the pregnant woman without identifiable risk might have a low priority vis-a-vis seriously ill patients, she and her family may have a very high priority in terms of the hospital's relationship with the community. Who is responsible for looking at this situation and ensuring that the hospital is offering its community a balanced approach?

3. Are patients coming into the hospital well prepared as to what to expect during childbirth?

4. What is the responsibility of the hospital's obstetrical team to "educate the educators" who provide patients with information about childbirth?

5. Is there a place for a health care "ombudsman" in the current climate of public opinion? Would an "ombudsman", which translated from Norwegian means "a man carrying messages", make the attitudes of both patients and doctors more flexible?

U.S. and International Experience and Trends

The assumption is that U.S. experience overlaps the border and affects Canada. There is a growth in independent child-bearing centres in the U.S. responding to the belief of pregnant women that hospital deliveries have become too costly, too impersonal and pose unnecessary infection risks. These centres are usually set up in converted single family dwellings, offering homelike settings for low risk deliveries usually performed by (nurse) midwives. covered by prepaid medical plans for midwives.[41] A number of states have developed birth centre licensing regulations in the last 3 years and other states are considering such laws.[15]

There are serious reservations whether we really want separate free-standing birthing centres in urban areas. This would result in a 4-tiered delivery care system. We already have a 3-tiered hospital system (Hospitals Level 1, 2 and 3) which is not adequately funded to operate as planned. Will it further increase health care costs to develop new birthing centres in metropolitan centres rather than change attitudes in facilities already in existence? Women must seriously consider the implications of having a delivery physically removed from medical technology should it be required. Would any kind of medical acts other than delivery be carried out in these birthing centres, such as insertion of intravenous lines, use of drugs for analgesia and so on? If this is so, who is responsible for ensuring these medical acts are carried out competently and for good reasons? Conversely, will withholding analgesia or intravenous feeding lines be detrimental in some cases? Will these places be equipped for resuscitation?

CONCERNS FOR DISCUSSION

1. **Is there a place for a free-standing birthing centre in the community?**
2. **Is there a place for a birthing centre, functionally integrated and geographically connected with a hospital?**
3. **Does the provision of such care depend more on attitude of the provider or the place in which it is provided?**

There are also incorporated midwife services supervised by obstetricians, for women who elect to give birth at home and who are assessed as without risk or at very low risk.

It is not clear precisely what should be said about U.S. and international trends that would give rise to productive positive discussions by members. Good reviews are available[42] The medical and social culture and financial structure for health care in other countries makes comparison with the Canadian scene difficult and uncertain. We have to recognize that a government funded medicare program is a very different social, political and fiscal environment than exists in the U.S. There seems to be some positive relationship between the development of innovations in health care delivery and the presence of diverse sources of funding. Innovation is more difficult where funding comes from a single public source.[12]

XII. GOVERNMENT INTEREST IN HEALTH CARE

Federal Government

Principles of Medicare

While the federal government is somewhat remote from day-to-day clinical issues in Ontario, its concerns will certainly affect the flow of funding into Ontario and on some issues the federal government may attempt to make changes in the way health care is delivered or paid for in Ontario. Federal responsibility is to ensure the uniform implementation of the five basic principles of Medicare and to provide appropriate funding:

- Comprehensive coverage for all medically required services rendered by a physician or surgeon.
- Reasonable access to insured services.
- Universal availability to all eligible residents of a participating province.

- Portability of benefits.
- Administration on a non-profit basis by a public authority.

These are the general guidelines within which evolution of OHIP-funded obstetrical care will take place. Will the Canada Health Act have any foreseeable impact on how well these five principles are implemented in the field of obstetrical care?

Alternative Personnel

With specific regard to using non-physicians in the delivery of health services, outside the hospital, there are no legal requirements at the federal level which dictate which services should be provided, or the quality of each service, or define their appropriateness for a national health care program. The actual provision of insured services by medically trained manpower other than physicians, beyond those envisaged in present federal legislation, will reflect "provincial discretion", "provincial priorities" and provincial funding. "The federal government has agreed not to expand the range of insured services without a provincial consensus."[43]

On the other hand the federal government in 1977 broadened its coverage of health care by including grants to the provinces for extended health care designed to cover nursing homes, intermediate care, adult residential care, home care and ambulatory health care.[43]

Opting-out

The percentage of obstetricians opted out in Ontario has run between 34-42% over the last 5 years. (OHIP DATA) Unless there is a major increase in OHIP fees, or maybe despite any such increase, if the Canada Health Act requires all obstetricians to practise within OHIP it may have adverse effects on physician morale and patient care. For example it may lead to greater use of "on call" coverage and fragmentation of personal care. What do we see to be the likely effects of a ban on balance billing, and how will these effects influence long-term developments in reproductive care and medical morale?

Guidelines

National Health and Welfare publishes a number of reports and guidelines which discuss aspects of the provision of reproductive care.[44]

Provincial Government

Financial Constraints

The following appears to be the context in which any changes in reproductive health care will take place in Ontario for the foreseeable future:

- Solutions to current forces for change must be compatible with tight government funding.

- Competition between the health care system and other government sectors for a fair portion of the tax revenue.

- Competition within the health care system for funding, e.g. one current non-obstetrical priority is mental health services.

- Concerns on how to meet the additional cost of health care for an aging population and costs associated with the growth of new, high technology in the health care system.

- If, as government feels, there is an over-supply of physicians, it is uncertain whether any cost saving would accrue from simply shifting the delivery of some services provided by physicians to other trained personnel.

Health Care in the '80s[18]

The role of the Ontario Government in health care has grown substantially over the last 25 years. Health care in the '80s is a highly politicised arena as a result. There is now a climate in which expensive innovations or add-on health programs will be looked at extremely carefully for their long-term cost implications. Is there a role for private money as a source of funding new developments in reproductive care?

The Ministry of Health has recently completed a strategic planning process for Ontario's health care system involving a number of regional meetings organized by district health councils. The priorities and concerns reflected to government in this process will have an impact on the evolution of health care in Ontario including obstetrical care. These priorities are:

- Health promotion activities to emphasize primary prevention.

- Better co-ordination of health care programs, services and manpower.

- Community based services as an alternative to costly institutional care.

- Accessibility to health care and the reduction of financial, cultural, language barriers.

- Funding incentives to influence manpower distribution, utilization and other changes in the system.

- Better data and information for health planning purposes.

- Decentralization of planning, management and evaluation of health programs.

The Ministry of Health seems committed to a broad process of evolutionary reform and gradual and carefully thought out change. At some point, members can expect these priorities to affect the delivery of obstetrical care and should be thinking about ways in which these priorities can lend support for real improvements in the system.

Regionalization of Perinatal Care

Certainly one government priority in the obstetrical area now is to fund a regional perinatal program including maternal and neonatal high risk facilities. We may see government shift funds into prevention in hopes of moderating the utilization of these facilities. The key will be to find those prevention strategies that can be shown to be demonstrably effective and safe in the long term. This certainly raises the profile of antenatal care and its prevention opportunities as a priority for discussion. Are there changes in the antenatal routine that could make it more effective and efficient?

As a result of government commitment to an improved consultation process, in the future we will probably see consumer influence on shaping the health care system to be greater and far more out in the open than we have seen in the past.

There should certainly be more emphasis on both the positive and negative financial incentives behind the structure of obstetrical care. Members should be thinking about whether, and how, the O.M.A. fee schedule influences patterns of practice toward or away from efficiency, and whether it discourages useful innovations or even the incentive to innovate. For example the O.M.A. fee in the fee schedule is the same irrespective of where the procedure is carried out, in a community hospital or a tertiary centre. There is little flexibility to qualify the fee according to the nature and complexity of the patient load or the degree of knowledge and expertise of the practitioner.

There certainly is interest in looking at overlapping functions between nurses and physicians. Whether or not there are in fact any significant savings to be made, it is probable that attempts will be made to reduce perceived duplication in services. It might be useful to explore what place global budgets, capitation fees or salaries have in the medical care system and how they favour particular delivery patterns. Do they provide incentives to hospitals and physicians to try out innovations in delivery systems? If not, where does the incentive to improve the system come from and what is needed to encourage useful innovation?

CONCERNS FOR DISCUSSION

1. **Will the Canada Health Act have any foreseeable positive impact on obstetrical care in terms of better fulfilling the five principles of medicare?**

2. **What do we see might be the likely effects of a total ban on extra billing?**

3. **How will these effects influence long-term developments in reproductive care and medical morale?**

4. **Where will funds come from for the improvement of care to pregnant women with no identifiable risk? What extra costs can be foreseen?**

5. **Is there a role for private money as a source of funding new service development in reproductive care?**

6. **Are there changes in the antenatal routine that could make it more effective and efficient as a preventive tool?**

7. **Does the fee-for-service method of funding obstetrical care now provide hospitals and physicians with incentives to try out innovations in delivery systems? If not, where does incentive to improve the system come from and what is needed to encourage useful innovation?**

XIII. SUMMARY

Biologically, the reproductive process sets the foundations for better or worse upon which the rest of one's life is built. Events during and around this process may subsequently be reflected in every facet of an individual's, and hence society's, functioning.

Superficially, in the 1980's it appears that reproductive care is struggling to come to grips with a number of issues in isolation from the rest of the health care system. It is obvious from the preceding discussions that many of these specific areas are only the tip of underlying issues which can and do have major implications for individuals, society, and the provision of health care in general. Perhaps it is appropriate that they have surfaced in relationship to reproductive care; this is an example of the evolution of philosophy following nature's biologic example. Equally however, if health care providers are to be more than technicians, they will need to understand the future implications of these changes occurring around the birthing process so that rational preparation and response can be instituted.

Two caveats are worth repeating:

> ONTARIO'S IMPROVING RECORD IN MATERNAL AND PERINATAL HEALTH CARE SUGGESTS THE SYSTEM SHOULD EVOLVE CAREFULLY AND SLOWLY. ON THE OTHER HAND WE RECOGNIZE SOME DANGER THAT PAST SUCCESSES MAY HAVE TRAPPED INSTITUTIONS, PROFESSIONS, SPECIALTIES AND INDIVIDUALS INTO FIXED PRACTICES AND MODES OF THOUGHT.
>
> THE PERINATAL CARE COMMITTEE OF THE ONTARIO MEDICAL ASSOCIATION WISHES TO MAKE IT CLEAR THAT IT STRONGLY DISAPPROVES OF ANY FORM OF MATERNAL/CHILD HEALTH CARE WHICH IS UNDERTAKEN IN ISOLATION FROM THE GENERAL HEALTH CARE SYSTEM.

LIST OF CONCERNS FOR DISCUSSION

HEALTH CARE

What were the needs of the majority of citizens, that the present health care system evolved to meet?

Do all these needs still need to be considered a priority? Are there new needs which should be recognized as a priority?

How can a system designed to meet the needs of the majority also be responsive to a minority without jeopardizing the rights of the majority?

REPRODUCTIVE CARE

What are the rights of the fetus and the newborn, if any?

How can we resolve conflicts between the rights of the mother and the rights of the fetus and the newborn?

What mechanism is there to ensure that any changes keep the safety of the mother, fetus and newborn in balance with the psycho-social needs of the pregnant woman?

Can the co-ordination of services and the team approach to reproductive care be improved?

How is education about reproduction being carried out, and is there a need for better co-ordination in the future?

MEDICAL PRACTICE - TRENDS IN ONTARIO

If the family physician is trained as a biologic scientist, is he still seen as the individual's friend and advocate? To be the latter, does he need the rigorous training of the former?

Should the traditional measures of health care, such as mortality and morbidity, continue as markers of satisfactory care? Should new indices of psycho-social wellbeing be included, and if so, what should be their priority?

Do new incentives need to be introduced to draw G.Ps. into a hospital role in urban hospitals?

REPRODUCTIVE CARE - TRENDS IN ONTARIO

In the current system, are the economics of reproductive care unduly geared to the moment of delivery?

What is the role of the family practitioner and obstetrician in the future delivery of reproductive care? Should the role vary according to geographic region?

What is the appropriate training for G.Ps. involved in obstetrical care?

What will be the effect of C.M.P.A. increases on fragmentation of care?

Is there an appropriate alternative to the current litigation system as a means of support for handicapped children?

NURSING

Should there be a single professional focus of responsibility and accountability for the health care received by members of society, and if so, should this continue to be the physician?

If there is to be a change in responsibility and accountability amongst health care professionals, how and by whom can such a process of delegation be accomplished and still protect the welfare of the individual in society?

If there are multiple foci of responsibility for health care, will this help or hinder the individual's ability to understand and be a responsible participant in the health care received?

If G.Ps. move away from involvement in hospitals and obstetrical care, who provides continuity of care and acts as the patient advocate?

If the obstetrician is going to be responsible for pregnant women, is there a need for a new member of the team to replace the G.P.?

If nurses are visualized as having an independent role in health care, what is the mechanism of accountability and legal liability?

Do public health nurses have the right skills and training for an expanded role in childbirth education or pre- and post-natal care?

SOCIETAL ISSUES

Why are some people dissatisfied with the present delivery system of obstetrical care?

Is this dissatisfaction a specific area of complaint or a reflection of a more general dissatisfaction within the health care system?

What objective indices could be agreed on to adequately reflect consumer and provider satisfaction?

NEW MANPOWER: ECONOMICS AND PATTERNS OF PRACTICE IN HEALTH CARE

Does the present system need any fundamental changes, or should we focus on adding innovations to the status quo?

Is the pregnant woman at no identifiable risk receiving care from the most appropriately trained individual?

Should the answer as to who provides care, vary from one region to another?

Is there an untapped role for a nurse practitioner in reproductive care?

Are there specific needs for advanced or enhanced training for obstetrical nurses, and if so, what are they?

Does the current method of funding reproductive care have to be changed to support improvements in future practice, and if so, what are the cost and benefit implications of these changes?

Do we need an entirely new type of personnel within the system to improve satisfaction levels with current reproductive care? If so, what training and regulations are appropriate, and how would they relate to present members of the health care team?

HOME VERSUS INSTITUTIONAL CARE

How does the medical community presently respond to couples planning home births and how do these responses fit with the profession's thrust to minimize maternal-infant morbidity and mortality? E.g., in some communities the physicians as a group refuse to provide prenatal care to couples planning home birth.

Are there ways that we can get a better assessment of the relative risks to the mother, the fetus and infant in planned home birth in Ontario?

If there are increased risks to planned home birth, then how do we reduce to a minimum the number of women who feel seriously tempted to give birth at home as well as the number who take the next step and actually make plans to have their baby at home?

If O.M.A. members live in a community where planned home births occur, community-based discussion of the issues might be useful to explore alternatives within the health care system. What is the responsibility of the local society or medical staff to show this type of leadership?

How do hospital policies and practices adapt to meet the changing needs of the consumer?

Who articulates these needs or how do hospitals recognize when patient needs are changing?

Is anyone in the hospital specifically responsible for looking at hospital policies and practices with a view to the patient's experience with the hospital?

How will hospitals mediate patients' requests for individual consideration

of their needs when they conflict with established hospital policies?

What is the role of the chief of staff and the president of the medical staff in this regard?

Do some of the present medical and hospital attitudes and procedures alienate people so that they will choose to opt for birth at home? If so, what are these attitudes and procedures, and how might they be modified to be more respecftl of the couple's wishes?

While the pregnant woman without identifiable risk might have a lower priority vis-a-vis seriously ill patients, she and her family may have a very high priority in terms of the hospital's relationship with the community. Who is responsible for looking at this situation and ensuring that the hospital is offering its community a balanced approach?

Are patients coming into the hospital well prepared as to what to expect during childbirth?

What is the responsibility of the hospital's obstetrical team to "educate the educators" who provide patients with information about childbirth?

Is there a place for a health care "ombudsman" in the current climate of public opinion? Would an "ombudsman", which translated from Norwegian means "a man carrying messages", make the attitudes of both patients and doctors more flexible?

Is there a place for a free-standing birthing centre in the community?

Is there a place for a birthing centre, functionally integrated and geographically connected with a hospital?

Does the provision of such care depend more on attitude of the provider or the place in which it is provided?

GOVERNMENT INTEREST IN HEALTH CARE

Will the Canada Health Act have any foreseeable positive impact on obstetrical care in terms of better fulfilling the five principles of medicare?

What do we see might be the likely effects of a total ban on extra billing?

How will these effects influence long-term developments in reproductive care and medical morale?

Where will funds come from for the improvement of care to pregnant women with no identifiable risk? What extra costs can be foreseen?

Is there a role for private money as a source of funding new service development in reproductive care?

Are there changes in the antenatal routine that could make it more effective and efficient as a preventive tool?

Does the fee-for-service method of funding obstetrical care now provide hospitals and physicians with incentives to try out innovations in delivery systems? If not, where does incentive to improve the system come from and what is needed to encourage useful innovation?

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APPENDIX E

LEVELS OF PERINATAL CARE*

Perinatal Care Units

A level I Perinatal Care Unit refers to the obstetrical/neonatal facilities and services provided in one hospital for the benefit of mothers and newborns with no significant identifiable risk. Appropriate resources must be available to provide care for emergencies which cannot be anticipated, including maternal and neonatal stabilization and neonatal resuscitation prior to transport. Facilities for caesarian sections should be available within, or adjacent to, the birth room. The selection of appropriate level of care should be defined in collaboration with the RPCC.

A level II Perinatal Care Unit is located in a major acute care hospital. It is composed of those facilities and services described for level I above, plus additional resources for the management of mothers and newborns with selected high risk problems such as:

- premature labour at 32 to 34 or more weeks gestation;
- suspected neonatal sepsis;
- other identifiable problems not requiring care in a level III Perinatal Care Unit.

Each PCU will, in collaboration with the Regional Perinatal Care Centre, maintain a program of:

- approved policies and procedures;[2] (Also refer to Annex A.)
- documentation and evaluation of clinical services provided in the area;
- a program of continuing education;
- and, collaboration in clinical investigation within its competence.

A level III Perinatal Care Unit has the resources of levels I and II Perinatal Care Units and, in addition, the resources for management of:

Mother

- Premature labour less than 32 to 34 weeks gestation.
- Premature rupture membranes prior to 32 to 34 weeks gestation.
- Severe pregnancy induced hypertension.
- Severe antepartum bleeding, continuing or repeated prior to 32 to 34 weeks gestation.
- Severe fetal growth restriction ($<$10th percentile).
- Severe maternal renal disease with evident decompensation.
- Severe Rhesus immunization.

Newborn

- Newborns less than 32 weeks or with a birth weight of 1750 grams or less.[3]
- Newborns with severe respiratory distress.
- Neonatal sepsis.
- Severe asphyxia.
- Symptomatic congenital heart disease.
- Major surgically amenable malformation of the newborn.
- Major metabolic disorders.
- Newborns requiring total parenteral nutrition.
- Newborns requiring prolonged ($>$24 hours) assisted ventilation.

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[2] Appropriate professional bodies (example: College of Family Physicians of Canada, Canadian Nurses Association, Canadian Pediatric Society, Society of Obstetricians and Gynecologists of Canada) should be contacted for material which would be used for developing specific policies and procedures for individual institutions.

[3] Depending upon the infant's clinical condition and local resources.

- Symptomatic maternal heart disease.

- Any maternal life-threatening disease.

- Mothers with known serious fetal malformation.

Modified Level III Perinatal Care Unit

Some components of this level III activity will be required in larger non teaching hospitals where isolation, geographic consideration or population density (more than 4000 live births per year) require a greater degree of sophistication of resources than is usual in level II units.

Regional Perinatal Care Centre

A Regional Perinatal Care Centre will usually function in a health sciences centre and will serve one perinatal care region. A regional centre, in addition to acting in a level I and level II capacity for its own population, will assume such additional responsibilities in the Perinatal Care Region as:

- the central referral unit for high risk perinatal problems requiring more specialized professional expertise for assessment and management, as described above;

- coordination of data collection and evaluation of services for the region[4];

- provision of collaborative assistance in the introduction of new approaches to perinatal care in the units of the region[4];

- provision of primary and continuing educational programs in perinatal medicine for physicians nurses and allied professions[4];

- quality assurance (which includes evaluation of long term outcome) research into the causes, prevention and treatment of diseases associated with reproduction.

Components of the Perinatal Care Network

The foregoing has addressed the establishment of a Regional Perinatal Care Network. The following will address the personnel, space and facility requirements and administrative policies of such a network. The details of the resources necessary in the preconceptional phase and genetic aspects of reproductive care are not addressed. These components are essential prerequisites of reproductive care and should be planned in concert with members of the Regional Perinatal Care Network.

Coordination of activity within a Regional Perinatal Care Network is achieved through a Regional Perinatal Outreach Program. This program is based on the Regional Perinatal Care Centre and its staff is comprised of obstetrician and pediatrician codirectors, a nurse coordinator, a program secretary and a data analyst. The functions of the Perinatal Outreach Program include:

(a) provision of assistance with continuing medical and nursing perinatal education in all hospitals of the region;

(b) establishment of a nurse interchange program for nurses in the community hospital to gain experience at the Regional Perinatal Care Centre;

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[4] Through its Perinatal Outreach Program.

[4] Through its Perinatal Outreach Program.

(c) provision of opportunities for educational residencies for community physicians at the Regional Perinatal Care Centre;

(d) provision of advice regarding equipment purchases, development of policies and procedures and optimal utilization of available space for maternal and newborn care in hospitals of the region;

(e) liaison with community hospitals regarding any problems encountered in obtaining optimal delivery of perinatal care; and

(f) provision of assistance with collection and analysis of perinatal statistics pertaining to performance and outcome at all hospitals in the region.

(* From: "Perinatal Intensive Care Units
in a Perinatal Care Network" -
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These definitions should be considered the Canadian Standard for 1987.

APPENDIX F

SELECTED PERINATAL
MORTALITY DATA

ONTARIO

1979 - 1981 - 1983

APRIL 1987

SELECTED PERINATAL MORTALITY DATA

ONTARIO

1979 - 1981 - 1983

I. SOURCE OF DATA:

In 1979, the Ministry of Health initiated a pilot project using 1975 data to study the feasibility and comprehensiveness of the available data. Based on the success of this project, a provincial perinatal information system was defined and established.

This report is based on the perinatal statistics from the system and covers the years 1979, 1981 and 1983.

The information in the Perinatal Data System derives from:

- hospitals with obstetrical services in Ontario and includes the integrated information from Hospital Medical Record Institute (H.M.R.I.) and hospital discharge records of the mother and the infant
- Vital Statistics Records of the Registrar General including livebirth, stillbirth and infant death records.

Each neonatal death has been ascribed to the hospital where the birth took place regardless of where the death occurred.

II. DEFINITIONS:

The definitions that have been adopted for this report are based on the recommendations in the Report of the Reproductive Medical Care Committee, September 1979(1), the Report of the Federal Task Force on High Risk Pregnancies and Prenatal Record Systems(2) and the requirements under the Vital Statistics Act(3) and the Public Hospitals Act(4):

- fetal death (stillbirth): a fetus weighing 500g or more, who shows no sign of life at birth
- fetal death rate (stillbirth rate): the number of stillborn infants per 1000 total births
- total birth: the sum of livebirths and stillbirths (fetal deaths)

- early neonatal death: death of a liveborn infant regardless of weight up to 7 days of life

- early neonatal mortality rate: the number of early neonatal deaths per 1000 liveborn infants

- perinatal death: the sum of stillbirths (fetal deaths) and early neonatal deaths

- perinatal mortality rate: the number of perinatal deaths per 1000 total births

- perinatal mortality rate (500 grams or more):

$$\frac{\text{fetal deaths + early neonatal deaths (both 500g or more)}}{\text{livebirths + fetal deaths (both 500g or more)}} \times 1000$$

- standard perinatal mortality rate; (internationally: 1000 grams and more):

$$\frac{\text{fetal deaths + early neonatal deaths (both 1000g or more)}}{\text{livebirths + fetal deaths (both 1000g or more)}} \times 1000$$

- birth weigh: the first weight of the fetus or newborn obtained right after birth. The groupings adopted are:

  $<$500g, any weight under 500g
  500g up to and including 749g
  750g up to and including 999g
  1000g up to and including 1249g
  1250 up to and including 1499g
  1500g up to and including 1999g
  2000g up to and including 2499g
  2500g+, any weight 2500 and over

- health regions: the six health regions of the Ministry of Health: Eastern, Central East, Central West, South West, North East and North West.

- level 3 perinatal centres: by the end of 1983, the following hospitals were recognized as level III perinatal centres:

  - Kingston General Hospital: Kingston
  - Women's College Hospital: Toronto
  - Mt. Sinai Hospital: Toronto
  - McMaster Division; Chedoke-McMaster Hospitals: Hamilton
  - St. Joseph's Hospital: London

- obstetrical volume: the number of mothers delivered in a given hospital. The groupings adopted were: 0 to 500, 501 to 1000, 1001 to 1500, 1501 to 2000, 2001 to 2500, 2501 to 3000 and 3001+.

III. PRELIMINARY FINDINGS OF ONTARIO PERINATAL DATA IN 1979, 1981, and 1983

A. Number of births

The number of live births in the province have increased from 123,551 in 1979 by 5141 births to 128,692 in 1983. When stillbirths are included, the difference is almost the same as the absolute stillbirth rate has decreased slightly such that total births in Ontario increased from 124,516 in 1979 to 129,634 in 1983. Therefore, the number of births in the province over the period increased by slightly over 4% during the four year period 1979-1983.

B. Perinatal Mortality

The fetal death rates for all birthweights has declined slightly from 7.8 per 1000 births in 1979 to 7.3 in 1983. There has been no significant improvement in the fetal death rate for babies born less than 1250 grams over the 4 year period. However, there is a trend to improvement in the fetal death rate for babies born with a birthweight of greater than 1250 grams.

There seems to have been improvements in neonatal mortality at all weight groups. It is notable that the early neonatal mortality rate in Ontario in 1983 for babies born greater than 1000 grams has fallen to 2.2 per 1000 live births and, for babies greater than 500 grams, to 3.6 per 1000 live births. These are remarkable statistics which would have seemed impossible ten years ago.

As a result, primarily from improvements in neonatal mortality data, the perinatal mortality rate for Ontario has demonstrated a remarkable improvement during the period 1979 to 1983. The overall perinatal mortality rate for babies of greater than 1000 grams (which is the normal international definition of perinatal mortality) decreased from 8.4 per 1000 births in 1979 to 6.7 in 1983.

These perinatal mortality statistics place Ontario among the leaders in the western world. It is tempting to suggest that implementation of regionalized perinatal care in Ontario which began between the years 1979 and 1981 has had an important role to play in these dramatic improvements.

C. Regional Perinatal Mortality Rates

A review of perinatal mortality rates from the six health regions of the province indicates that improvements have been made between 1979 and 1983 in all regions. The southern regions of the province which include the Eastern, Central East, Central West, and South West regions have had improvements in perinatal mortality which ranged between 7.1 and 9.1 in 1979 and have fallen to 6.6-6.8 per 1000 births in 1983. The North East and North West regions had perinatal mortality rates of 8.6 and 9 per 1000 births respectively in 1979 and these have fallen to 7.1 and 7.3 in 1983. Although there have been improvements in Northern Ontario, the data continue to suggest a greater risk for perinatal mortality exists for families living in Northern Ontario.

D. Perinatal Mortality by Hospital Obstetrical Volume

Examination of the perinatal mortality rates by obstetrical volume shows a 35.8% decrease from 1979 to 1983 in the lowest obstetrical volume units (0-500 births annually). In the next two higher categories (501-1000 and 1001-1500 annual births) there are 18% and 3.0% reductions. The 1501-2000 group of hospitals shows a 29.5% fall. The 2001-2500 category is exceptional with no change over the 5 years level of study, but the two higher volume categories, which include the level 3 units in Health Sciences Centres, register declines of 28.0% and 31.1% respectively. Thus the results in larger volume units, despite a presumably higher risk population, have registered substantial improvements in perinatal mortality rates.

IV. CONCLUSION

In general, the expectations for improvements in perinatal mortality rates arising from the early and partial implementation of the regionalized referral system are being realised.

This brief commentary is preliminary to a full statistical analysis of trends in Provincial Perinatal Mortality to be published separately later.

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April, 1987

TABLE: I A - REPRODUCTIVE OUTCOME BY NUMBER AND BY BIRTH WEIGHT

ONTARIO: 1979 - 1981 - 1983

BIRTH WEIGHT	LIVEBIRTH			FETAL DEATH			EARLY NEONATAL DEATH			PERINATAL DEATH		
	1979	1981	1983	1979	1981	1983	1979	1981	1983	1979	1981	1983
< 500 g	68	65	87	89	77	118	63	56	74	152	133	192
500 - 749 g	180	165	201	132	130	140	144	109	119	276	239	259
750 - 999 g	266	221	259	85	75	83	106	70	62	191	145	145
1000 - 1249 g	289	275	251	59	67	65	49	43	25	108	110	90
1250 - 1499 g	343	344	369	62	44	52	40	38	28	102	82	80
1500 - 1999 g	1418	1381	1371	121	102	99	72	51	38	193	153	137
2000 - 2499 g	4862	4726	4641	111	103	89	71	56	46	182	159	135
2500 g +	116046	116651	121466	295	285	284	156	159	142	451	444	426
Unknown	79	34	47	11	13	12	48	17	17	59	30	29
SUB-TOTAL* 500 g +	123404	123763	128558	865	806	812	638	526	460	1503	1332	1272
SUB-TOTAL* 1000 g +	122964	123377	128098	648	601	589	388	347	279	1036	948	868
TOTAL	123551	123862	128692	965	896	942	749	599	551	1714	1495	1493

(* Unknown birth weight not included)

TABLE: I B - REPRODUCTIVE OUTCOME BY RATES AND BY BIRTH WEIGHT

ONTARIO: 1979 - 1981 - 1983

BIRTH WEIGHT	FETAL DEATH RATE			EARLY NEONATAL MORTALITY RATE			PERINATAL MORTALITY RATE		
	1979	1981	1983	1979	1981	1983	1979	1981	1983
< 500 g	566.9	542.3	575.6	926.5	861.5	850.6	968.2	936.6	936.6
500 - 749 g	423.1	440.7	410.6	800.0	660.6	592.0	884.6	810.2	759.5
750 - 999 g	242.2	253.4	242.7	398.5	316.7	239.4	544.2	489.9	424.0
1000 - 1249 g	169.5	195.9	205.7	169.6	156.4	99.6	310.3	321.6	284.8
1250 - 1499 g	153.1	113.4	123.5	116.6	110.5	75.9	251.9	211.3	190.0
1500 - 1999 g	78.6	68.8	67.3	50.8	36.9	27.7	125.4	103.2	93.2
2000 - 2499 g	22.3	21.3	18.8	14.6	11.8	9.9	36.6	32.9	28.5
2500 g +	2.5	2.4	2.3	1.3	1.4	1.2	3.9	3.8	3.5
SUB-TOTAL* 500 g +	7.0	6.5	6.3	5.2	4.3	3.6	12.1	10.7	9.8
SUB-TOTAL* 1000 g +	5.2	4.8	4.6	3.2	2.8	2.2	8.4	7.6	6.7
TOTAL	7.8	7.2	7.3	6.1	4.8	4.3	13.8	12.0	11.5

(* Unknown birth weight not included)

FIGURE: A

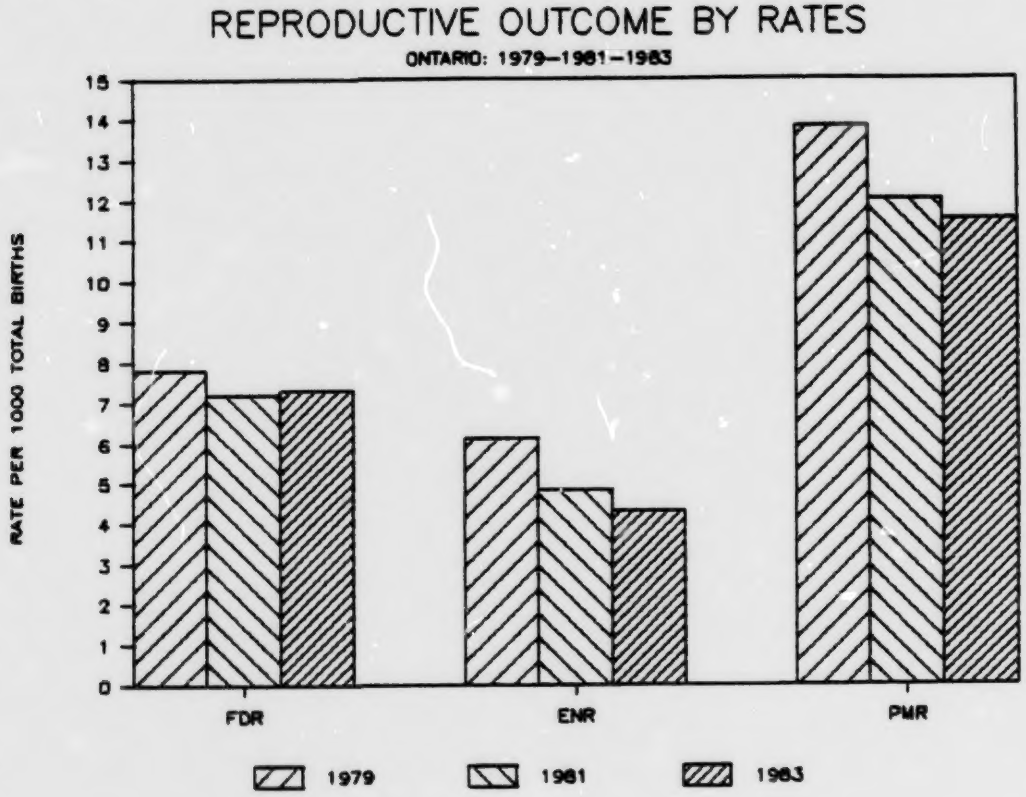

REPRODUCTIVE OUTCOME BY RATES
ONTARIO: 1979–1981–1983
RATE PER 1000 TOTAL BIRTHS
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
FDR
ENR
PMR
1979
1981
1983

TABLE: II A - REPRODUCTIVE OUTCOME BY NUMBER, BY BIRTH WEIGHT AND BY RESIDENCE OF MOTHER

EASTERN REGION: 1979 - 1981 - 1983

BIRTH WEIGHT	LIVEBIRTH			FETAL DEATH			EARLY NEONATAL DEATH			PERINATAL DEATH		
	1979	1981	1983	1979	1981	1983	1979	1981	1983	1979	1981	1983
< 500 g	3	12	4	7	8	7	3	10	3	10	18	10
500 - 749 g	22	11	21	15	12	13	21	5	15	36	17	28
750 - 999 g	45	21	24	9	12	8	21	7	7	30	19	15
1000 - 1249 g	46	30	36	7	9	12	7	8	5	14	17	17
1250 - 1499 g	38	48	50	7	9	6	3	8	2	10	17	8
1500 - 1999 g	173	177	186	21	22	14	9	6	3	30	28	17
2000 - 2499 g	665	642	650	22	15	9	10	9	6	32	24	15
2500 g +	14875	14799	15934	35	32	37	24	23	17	59	55	54
Unknown	4	4	3	2	1	0	3	4	0	5	5	0
SUB-TOTAL* 500 g +	15864	15728	16901	116	111	99	95	66	55	211	177	154
SUB-TOTAL* 1000 g +	15797	15696	16856	92	87	78	53	54	33	145	141	111
TOTAL	15871	15744	16908	125	120	106	101	80	58	226	200	164

(* Unknown birth weight not included)

TABLE: II B - REPRODUCTIVE OUTCOME BY RATES, BY BIRTH WEIGHT AND BY RESIDENCE OF MOTHER

EASTERN REGION: 1979 - 1981 - 1983

BIRTH WEIGHT	FETAL DEATH RATE			EARLY NEONATAL MORTALITY RATE			PERINATAL MORTALITY RATE		
	1979	1981	1983	1979	1981	1983	1979	1981	1983
< 500 g	700.0	400.0	636.4	1000.0	833.3	750.0	1000.0	900.0	909.1
500 - 749 g	405.4	521.7	382.4	954.5	454.5	714.3	973.0	739.1	823.5
750 - 999 g	166.7	363.6	250.0	466.7	333.3	291.7	555.6	575.8	468.8
1000 - 1249 g	132.1	230.8	250.0	152.2	266.7	138.9	264.2	435.9	354.2
1250 - 1499 g	155.6	157.9	107.1	78.9	166.7	40.0	222.2	298.2	142.9
1500 - 1999 g	108.2	110.6	70.0	52.0	33.9	16.1	154.6	140.7	85.0
2000 - 2499 g	32.0	22.8	13.7	15.0	14.0	9.2	46.6	36.5	22.8
2500 g +	2.3	2.2	2.3	1.6	1.6	1.1	4.0	3.7	3.4
SUB-TOTAL* 500 g +	7.3	7.0	5.8	6.0	4.2	3.3	13.2	11.2	9.1
SUB-TOTAL* 1000 g +	5.8	5.5	4.6	3.4	3.4	2.0	9.1	8.9	6.6
TOTAL	7.8	7.6	6.2	6.4	5.1	3.4	14.1	12.6	9.6

(* Unknown birth weight not included)

TABLE: III A - REPRODUCTIVE OUTCOME BY NUMBER, BY BIRTH WEIGHT AND BY RESIDENCE OF MOTHER

CENTRAL EAST REGION: 1979 - 1981 - 1983

BIRTH WEIGHT	LIVEBIRTH			FETAL DEATH			EARLY NEONATAL DEATH			PERINATAL DEATH		
	1979	1981	1983	1979	1981	1983	1979	1981	1983	1979	1981	1983
< 500 g	28	18	30	29	24	51	27	16	27	56	40	78
500 - 749 g	74	75	91	55	54	74	53	55	45	108	109	119
750 - 999 g	102	101	129	36	29	38	29	32	22	65	61	60
1000 - 1249 g	129	130	103	30	32	26	19	19	9	49	51	35
1250 - 1499 g	145	134	150	21	16	28	22	9	7	43	25	35
1500 - 1999 g	575	569	582	47	38	44	24	22	10	71	60	54
2000 - 2499 g	1991	1981	1998	47	36	43	27	24	23	74	60	66
2500 g +	46866	48636	51680	128	108	110	51	71	62	179	179	172
Unknown	34	16	32	4	3	3	27	11	12	31	14	15
SUB-TOTAL* 500 g +	49882	51626	54733	364	313	363	225	232	178	589	545	541
SUB-TOTAL* 1000 g +	49706	51450	54513	273	230	251	143	145	111	416	375	362
TOTAL	49944	51660	54795	397	340	417	279	259	217	676	599	634

(* Unknown birth weight not included)

TABLE: III B - REPRODUCTIVE OUTCOME BY RATE, BY BIRTH WEIGHT AND BY RESIDENCE OF MOTHER

CENTRAL EAST REGION: 1979 - 1981 - 1983

BIRTH WEIGHT	FETAL DEATH RATE			EARLY NEONATAL MORTALITY RATE			PERINATAL MORTALITY RATE		
	1979	1981	1983	1979	1981	1983	1979	1981	1983
< 500 g	508.8	571.4	629.6	964.3	888.9	900.0	982.4	952.3	962.9
500 - 749 g	426.3	418.6	448.5	716.2	733.3	494.5	837.2	844.9	721.2
750 - 999 g	260.9	223.1	227.5	284.3	316.8	170.5	471.0	469.2	359.2
1000 - 1249 g	188.7	197.5	201.6	147.3	146.1	87.4	308.1	314.8	271.3
1250 - 1499 g	126.5	106.7	157.3	151.7	67.2	46.7	259.0	166.6	196.6
1500 - 1999 g	75.6	62.6	70.3	41.7	38.7	17.2	114.1	98.8	86.2
2000 - 2499 g	23.1	17.8	21.1	13.6	12.1	11.5	36.2	29.7	32.3
2500 g +	2.7	2.2	2.1	1.1	1.5	1.2	3.8	3.6	3.3
SUB-TOTAL* 500 g +	7.2	6.0	6.6	4.5	4.5	3.3	11.7	10.4	9.8
SUB-TOTAL* 1000 g +	5.5	4.5	4.6	2.9	2.8	2.0	8.3	7.2	6.6
TOTAL	7.9	6.5	7.6	5.6	5.0	4.0	13.4	11.5	11.4

(* Unknown birth weight not included)

TABLE: IV A - REPRODUCTIVE OUTCOME BY NUMBER, BY BIRTH WEIGHT AND BY RESIDENCE OF MOTHER

CENTRAL WEST REGION: 1979 - 1981 - 1983

BIRTH WEIGHT	LIVEBIRTH			FETAL DEATH			EARLY NEONATAL DEATH			PERINATAL DEATH		
	1979	1981	1983	1979	1981	1983	1979	1981	1983	1979	1981	1983
< 500 g	13	14	21	20	19	23	13	14	19	33	33	42
500 - 749 g	31	37	32	25	21	21	23	18	18	48	39	39
750 - 999 g	37	38	33	19	14	9	18	9	7	37	23	16
1000 - 1249 g	41	48	42	10	14	11	6	9	4	16	23	15
1250 - 1499 g	62	65	64	8	9	7	4	10	5	12	19	12
1500 - 1999 g	285	264	224	20	14	15	17	10	15	37	24	30
2000 - 2499 g	857	827	786	17	16	12	11	6	5	28	22	17
2500 g +	22180	22148	22860	56	63	64	36	23	26	92	86	90
Unknown	10	3	2	4	3	3	7	0	2	11	3	5
SUB-TOTAL* 500 g +	23493	23427	24041	155	151	139	115	85	80	270	236	219
SUB-TOTAL* 1000 g +	23425	23352	23976	111	116	109	74	58	55	185	174	164
TOTAL	23516	23444	24064	179	173	165	135	99	101	314	272	266

(* Unknown birth weight not included)

TABLE: IV B - REPRODUCTIVE OUTCOME BY RATES, BY BIRTH WEIGHT AND BY RESIDENCE OF MOTHER

CENTRAL WEST REGION: 1979 - 1981 - 1983

BIRTH WEIGHT	FETAL DEATH RATE			EARLY NEONATAL MORTALITY RATE			PERINATAL MORTALITY RATE		
	1979	1981	1983	1979	1981	1983	1979	1981	1983
< 500 g	606.1	575.8	522.7	1000.0	1000.0	904.8	1000.0	1000.0	954.5
500 - 749 g	446.4	362.1	396.2	741.9	486.5	562.5	857.1	672.4	735.8
750 - 999 g	339.3	269.2	214.3	486.5	236.8	212.1	660.7	442.3	381.0
1000 - 1249 g	196.1	225.8	207.5	146.3	187.5	95.2	313.7	371.0	283.0
1250 - 1499 g	114.3	121.6	98.6	64.5	153.8	78.1	171.4	256.8	169.0
1500 - 1999 g	65.6	50.4	62.8	59.6	37.9	67.0	121.3	86.3	125.5
2000 - 2499 g	19.5	19.0	15.0	12.8	7.3	6.4	32.0	26.1	21.3
2500 g +	2.5	2.8	2.8	1.6	1.0	1.1	4.1	3.9	3.9
SUB-TOTAL* 500 g +	6.6	6.4	5.7	4.9	3.6	3.3	11.4	10.0	9.1
SUB-TOTAL 1000 g +	4.7	4.9	4.5	3.2	2.5	2.3	7.9	7.4	6.8
TOTAL	7.6	7.3	6.8	5.7	4.2	4.2	13.3	11.5	11.0

(* Unknown birth weight not included)

TABLE: V A - REPRODUCTIVE OUTCOME BY NUMBER, BY BIRTH WEIGHT AND BY RESIDENCE OF MOTHER

SOUTH WEST REGION: 1979 - 1981 - 1983

BIRTH WEIGHT	LIVEBIRTH			FETAL DEATH			EARLY NEONATAL DEATH			PERINATAL DEATH		
	1979	1981	1983	1979	1981	1983	1979	1981	1983	1979	1981	1983
< 500 g	16	8	15	21	17	19	15	6	12	36	23	31
500 - 749 g	31	26	36	25	25	19	27	19	27	52	44	46
750 - 999 g	47	33	44	7	12	10	21	11	12	28	23	22
1000 - 1249 g	40	42	37	7	5	7	10	4	4	17	9	11
1250 - 1499 g	53	51	65	14	1	6	5	7	10	19	8	16
1500 - 1999 g	217	204	206	21	18	15	11	10	4	32	28	19
2000 - 2499 g	723	706	654	13	16	15	10	8	8	23	24	23
2500 g +	18048	17374	17759	46	42	34	24	26	24	70	68	58
Unknown	10	2	5	0	2	2	6	0	3	6	2	5
SUB-TOTAL* 500 g +	19159	18436	18801	133	119	106	108	85	89	241	204	195
SUB-TOTAL* 1000 g +	19081	18377	18721	101	82	77	60	55	50	161	137	127
TOTAL	19185	18446	18821	154	138	127	129	91	104	283	229	231

(* Unknown birth weight not included)

TABLE:IXA - EARLY NEONATAL DEATH RATE BY BIRTH WEIGHT

AND BY OBSTETRICAL VOLUME 0-500

ONTARIO: 1979-1981-1983

Birth Weight	1979	1981	1983
< 500 g	666.7 (2)	- (0)	1000.0 (5)
500-749 g	1000.0 (11)	700.0 (7)	700.0 (7)
750-999 g	520.0 (13)	500.0 (2)	400.0 (2)
1000-1249 g	230.8 (3)	142.9 (1)	83.3 (1)
1250-1499 g	208.3 (5)	83.3 (1)	90.9 (1)
1500-1999 g	83.3 (8)	35.7 (3)	31.7 (2)
2000-2499 g	7.6 (4)	4.2 (2)	5.2 (2)
2500 + g	1.9 (29)	1.3 (20)	0.8 (12)
unknown	(5)	(5)	(1)
Sub-Total* 500 g +	4.6 (73)	2.3 (36)	1.8 (27)
Sub-Total* 1000 g +	3.1 (49)	1.7 (27)	1.2 (18)
TOTAL	5.1 (80)	2.6 (41)	2.1 (33)

(* unknown birth weight not included)

TABLE: V B - REPRODUCTIVE OUTCOME BY RATES, BY BIRTH WEIGHT AND BY RESIDENCE OF MOTHER

SOUTH WEST REGION: 1979 - 1981 - 1983

BIRTH WEIGHT	FETAL DEATH RATE			EARLY NEONATAL MORTALITY RATE			PERINATAL MORTALITY RATE		
	1979	1981	1983	1979	1981	1983	1979	1981	1983
500 g	567.6	680.0	558.8	937.5	750.0	800.0	973.0	920.0	911.8
500 - 749 g	446.4	490.2	345.5	871.0	730.8	750.0	928.6	862.7	836.4
750 - 999 g	129.6	266.7	185.2	446.8	333.3	272.7	518.5	511.1	407.4
1000 - 1249 g	148.9	106.4	159.1	250.0	95.2	108.1	361.7	191.5	250.0
1250 - 1499 g	209.0	19.2	84.5	94.3	137.3	153.8	283.6	153.8	225.4
1500 - 1999 g	88.2	81.1	67.9	50.7	49.0	19.4	134.5	126.1	86.0
2000 - 2499 g	17.7	22.2	22.4	13.8	11.3	12.2	31.3	33.2	34.4
2500 g +	2.5	2.4	1.9	1.3	1.5	1.4	3.9	3.9	3.3
SUB-TOTAL* 500 g +	6.9	6.4	5.6	5.6	4.6	4.7	12.5	11.0	10.3
SUB-TOTAL* 1000 g +	5.3	4.4	4.1	3.1	3.0	2.7	8.4	7.4	6.8
TOTAL	8.0	7.4	6.7	6.7	4.9	5.5	14.6	12.3	12.2

(* Unknown birth weight not included)

TABLE:IXB - EARLY NEONATAL DEATH RATE BY BIRTH WEIGHT AND BY OBSTETRICAL VOLUME 501-1000

ONTARIO: 1979-1981-1983

Birth Weight	1979	1981	1983
< 500 g	1000.0 (5)	1000.0 (5)	1000.0 (5)
500-749 g	888.9 (8)	909.1 (10)	1000.0 (7)
750-999 g	416.7 (5)	500.0 (8)	307.7 (4)
1000-1249 g	263.2 (5)	111.1 (2)	153.8 (2)
1250-1499 g	125.0 (3)	277.8 (5)	105.3 (2)
1500-1999 g	72.7 (8)	35.2 (5)	39.2 (4)
2000-2499 g	27.6 (14)	14.0 (7)	15.1 (7)
2500 + g	1.5 (18)	1.9 (24)	0.8 (11)
unknown	(3)	(0)	(3)
Sub-Total* 500 g +	4.7 (61)	4.7 (61)	2.8 (37)
Sub-Total* 1000 g +	3.7 (48)	3.3 (43)	2.0 (26)
TOTAL	5.4 (69)	5.1 (66)	3.4 (45)

(* unknown birth weight not included)

TABLE: VI A - REPRODUCTIVE OUTCOME BY NUMBER, BY BIRTH WEIGHT AND BY RESIDENCE OF MOTHER

NORTH EAST REGION: 1979 - 1981 - 1983

BIRTH WEIGHT	LIVEBIRTH			FETAL DEATH			EARLY NEONATAL DEATH			PERINATAL DEATH		
	1979	1981	1983	1979	1981	1983	1979	1981	1983	1979	1981	1983
< 500 g	6	9	13	6	4	6	4	6	9	10	10	15
500 - 749 g	13	10	10	6	10	7	11	7	5	17	17	12
750 - 999 g	15	14	15	11	4	10	6	5	6	17	9	16
1000 - 1249 g	17	16	21	3	3	4	3	1	3	6	4	7
1250 - 1499 g	21	27	26	7	5	3	2	2	3	9	7	6
1500 - 1999 g	91	104	103	7	1	8	7	2	6	14	3	14
2000 - 2499 g	369	361	342	6	13	5	8	6	0	14	19	5
2500 g +	8370	8242	8066	21	26	20	13	10	9	34	36	29
Unknown	8	2	0	1	2	3	4	0	0	5	2	3
SUB-TOTAL* 500 g +	8896	8774	8583	61	62	57	50	33	32	111	95	89
SUB-TOTAL* 1000 g +	8868	8750	8558	44	48	40	33	21	21	77	69	61
TOTAL	8910	8785	8596	68	68	66	58	39	41	126	107	107

(* Unknown birth weight not included)

TABLE: VI B - REPRODUCTIVE OUTCOME BY RATES BY BIRTH WEIGHT AND BY RESIDENCE OF MOTHER

NORTH EAST REGION: 1979 - 1981 - 1983

BIRTH WEIGHT	FETAL DEATH RATE			EARLY NEONATAL MORTALITY RATE			PERINATAL MORTALITY RATE		
	1979	1981	1983	1979	1981	1983	1979	1981	1983
< 500 g	500.0	307.7	315.8	666.7	666.7	692.3	833.3	769.2	789.5
500 - 749 g	315.8	500.0	411.8	846.2	700.0	500.0	894.7	850.0	705.9
750 - 999 g	423.1	222.2	400.0	400.0	357.1	400.0	653.8	500.0	640.0
1000 - 1249 g	150.0	157.9	160.0	176.5	62.5	142.9	300.0	210.5	280.0
1250 - 1499 g	250.0	156.3	103.4	95.2	74.1	115.4	321.4	218.8	206.9
1500 - 1999 g	71.4	9.5	72.1	76.9	19.2	58.3	142.9	28.6	126.1
2000 - 2499 g	16.0	34.8	14.4	21.7	16.6	0	37.3	50.8	14.4
2500 g +	2.5	3.1	2.5	1.6	1.2	1.1	4.1	4.4	3.6
SUB-TOTAL* 500 g +	6.8	7.0	6.6	5.6	3.8	3.7	12.4	10.8	10.3
SUB-TOTAL* 1000 g +	4.9	5.5	4.7	3.7	2.4	2.5	8.6	7.8	7.1
TOTAL	7.6	7.7	7.6	6.5	4.4	4.8	14.0	12.1	12.4

(* Unknown birth weight not included)

TABLE: VII A - REPRODUCTIVE OUTCOME BY NUMBER, BY BIRTH WEIGHT AND BY RESIDENCE OF MOTHER

NORTH WEST REGION: 1979 - 1981 - 1983

BIRTH WEIGHT	LIVEBIRTH			FETAL DEATH			EARLY NEONATAL DEATH			PERINATAL DEATH		
	1979	1981	1983	1979	1981	1983	1979	1981	1983	1979	1981	1983
< 500 g	0	1	0	3	4	7	0	1	0	3	5	7
500 - 749 g	3	4	7	5	3	5	3	3	6	8	6	11
750 - 999 g	10	7	9	1	0	6	6	5	4	7	5	10
1000 - 1249 g	8	4	6	1	1	4	2	1	0	3	2	4
1250 - 1499 g	16	11	8	5	4	1	3	2	0	8	6	1
1500 - 1999 g	43	38	43	3	5	3	3	1	0	6	6	3
2000 - 2499 g	158	118	128	4	5	2	5	2	2	9	7	4
2500 g +	3775	3688	3509	7	10	12	3	5	3	10	15	15
Unknown	2	3	3	0	2	0	0	2	0	0	4	0
SUB-TOTAL* 500 g +	4013	3870	3710	26	28	33	25	19	15	51	47	48
SUB-TOTAL* 1000 g +	4000	3859	3694	20	25	22	16	11	5	36	36	27
TOTAL	4015	3874	3713	29	34	40	25	22	15	54	56	55

(* Unknown birth weight not included)

TABLE: VII B - REPRODUCTIVE OUTCOME BY RATES, BY BIRTH WEIGHT AND BY RESIDENCE OF MOTHER

NORTH WEST REGION: 1979 - 1981 - 1983

BIRTH WEIGHT	FETAL DEATH RATE			EARLY NEONATAL MORTALITY RATE			PERINATAL MORTALITY RATE		
	1979	1981	1983	1979	1981	1983	1979	1981	1983
< 500 g	1000.0	800.0	1000.0	0	1000.0	0	1000.0	1000.0	1000.0
500 - 749 g	625.0	428.6	416.7	1000.0	750.0	857.1	1000.0	857.1	916.7
750 - 999 g	90.9	0	400.0	600.0	714.3	444.4	636.4	714.3	666.7
1000 - 1249 g	111.1	200.0	400.0	250.0	250.0	0	333.3	400.0	400.0
1250 - 1499 g	238.1	266.7	111.1	187.5	181.8	0	381.0	400.0	111.1
1500 - 1999 g	65.2	116.3	65.2	69.8	26.3	0	130.4	139.5	65.2
2000 - 2499 g	24.7	40.7	15.4	31.6	16.9	15.6	55.6	56.9	30.8
2500 g +	1.9	2.7	3.4	.8	1.4	.9	2.6	4.1	4.3
SUB-TOTAL* 500 g +	6.4	7.2	8.8	6.2	4.9	4.0	12.6	12.1	12.8
SUB-TOTAL* 1000 g +	5.0	6.4	5.9	4.0	2.9	1.4	9.0	9.3	7.3
TOTAL	7.2	8.7	10.7	6.2	5.7	4.0	13.4	14.3	14.7

(* Unknown birth weight not included)

TABLE: VIII A - PERINATAL MORTALITY RATE BY BIRTH WEIGHT AND BY OBSTETRICAL VOLUME 0-500

ONTARIO: 1979-1981-1983

Birth Weight	1979	1981	1983
<500 g	954.5 (21)	1000.0 (10)	1000.0 (12)
500-749 g	1000.0 (21)	833.3 (15)	750.0 (9)
750-999 g	625.0 (20)	818.2 (9)	700.0 (7)
1000-1249 g	565.2 (13)	538.5 (7)	312.5 (5)
1250-1499 g	387.1 (12)	352.9 (6)	333.3 (5)
1500-1999 g	192.6 (21)	147.4 (14)	152.7 (11)
2000-2499 g	37.1 (20)	26.9 (13)	35.2 (14)
2500 + g	4.1 (62)	4.3 (65)	3.0 (45)
unknown	(10)	(6)	(6)
Sub-Total* 500 g +	10.7 (169)	8.1 (129)	6.2 (96)
Sub-Total* 1000 g +	8.1 (128)	6.6 (105)	5.2 (80)
TOTAL	12.6 (200)	9.1 (145)	7.4 (114)

(* unknown birth weight not included)

TABLE: VIII B - PERINATAL MORTALITY RATE BY BIRTH WEIGHT AND BY OBSTETRICAL VOLUME 501-1000

ONTARIO: 1979-1981-1983

Birth Weight	1979	1981	1983
< 500 g	1000.0 (10)	1000.0 (17)	1000.0 (19)
500-749 g	947.4 (18)	950.0 (19)	1000.0 (22)
750-999 g	533.3 (8)	680.0 (17)	500.0 (9)
1000-1249 g	363.6 (8)	360.0 (9)	541.6 (13)
1250-1499 g	343.8 (11)	500.0 (13)	370.3 (10)
1500-1999 g	163.9 (20)	104.6 (16)	117.1 (13)
2000-2499 g	46.3 (24)	37.1 (19)	31.7 (15)
2500 + g	4.3 (52)	4.4 (55)	2.9 (36)
unknown	(3)	(3)	(4)
Sub-Total* 500 g +	10.9 (141)	11.3 (148)	8.9 (118)
Sub-Total* 1000 g +	8.9 (115)	8.6 (112)	7.3 (96)
TOTAL	11.9 (154)	12.8 (168)	10.7 (141)

(* unknown birth weight not included)

TABLE: VIII C - PERINATAL MORTALITY RATE BY BIRTH WEIGHT AND BY OBSTETRICAL VOLUME 1001-1500

ONTARIO: 1979-1981-1983

Birth Weight	1979	1981	1983
<500 g	954.5 (21)	1000.0 (21)	961.5 (25)
500-749 g	964.9 (55)	875.0 (42)	844.4 (38)
750-999 g	732.1 (41)	647.1 (22)	733.3 (22)
1000-1249 g	500.0 (19)	477.3 (21)	640.0 (16)
1250-1499 g	346.2 (18)	209.3 (9)	305.5 (11)
1500-1999 g	139.1 (32)	134.7 (33)	146.3 (24)
2000-2499 g	34.9 (31)	29.7 (29)	24.9 (17)
2500 + g	3.3 (72)	3.8 (92)	3.8 (69)
unknown	(7)	(3)	(0)
Sub-Total* 500 g +	11.6 (268)	8.4 (218)	10.4 (197)
Sub-Total* 1000 g +	7.5 (172)	5.9 (154)	7.3 (137)
TOTAL	12.8 (296)	9.4 (242)	11.7 (222)

(* unknown birth weight not included)

TABLE: VIII D - PERINATAL MORTALITY RATE BY BIRTH WEIGHT AND BY OBSTETRICAL VOLUME 1501-2000

ONTARIO: 1979-1981-1983

Birth Weight	1979	1981	1983
<500 g	1000.0 (57)	909.1 (30)	1000.0 (23)
500-749 g	890.2 (73)	890.6 (57)	818.2 (45)
750-999 g	530.3 (35)	622.6 (33)	533.3 (24)
1000-1249 g	308.8 (21)	425.9 (23)	400.0 (18)
1250-1499 g	185.6 (18)	305.1 (18)	263.2 (15)
1500-1999 g	124.6 (48)	130.6 (32)	97.9 (23)
2000-2499 g	36.8 (39)	45.2 (42)	24.7 (23)
2500 + g	4.0 (95)	3.8 (86)	3.1 (71)
unknown	(10)	(2)	(1)
Sub-Total* 500 g +	13.0 (329)	12.2 (291)	9.0 (219)
Sub-Total* 1000 g +	8.8 (221)	8.5 (201)	6.2 (150)
TOTAL	15.7 (396)	13.5 (323)	9.9 (243)

(* unknown birth weight not included)

TABLE: VIII E - PERINATAL MORTALITY RATE BY BIRTH WEIGHT AND BY OBSTETRICAL VOLUME 2001-2500

ONTARIO: 1979-1981-1983

Birth Weight	1979	1981	1983
<500 g	1000.0 (16)	883.7 (38)	921.8 (59)
500-749 g	863.6 (38)	731.3 (49)	710.1 (49)
750-999 g	543.5 (24)	464.3 (26)	458.3 (33)
1000-1249 g	354.8 (22)	416.6 (30)	250.0 (16)
1250-1499 g	377.7 (17)	173.3 (13)	141.5 (15)
1500-1999 g	113.4 (27)	85.0 (25)	87.9 (29)
2000-2499 g	32.3 (25)	30.2 (28)	26.0 (23)
2500 + g	3.5 (66)	3.4 (72)	1.1 (92)
unknown	(1)	(4)	(2)
Sub-Total* 500 g +	11.0 (219)	10.8 (247)	11.5 (257)
Sub-Total* 1000 g +	7.9 (157)	7.6 (172)	7.9 (175)
TOTAL	11.8 (236)	12.5 (285)	14.2 (318)

(* unknown birth weight not included)

TABLE: VIII F - PERINATAL MORTALITY RATE BY BIRTH WEIGHT AND BY OBSTETRICAL VOLUME 2501-3000

ONTARIO: 1979-1981-1983

Birth Weight	1979	1981	1983
<500 g	909.1 (10)	666.6 (2)	884.6 (23)
500-749 g	820.5 (32)	833.3 (10)	634.6 (33)
750-999 g	450.0 (27)	500.0 (6)	257.1 (18)
1000-1249 g	241.4 (14)	266.6 (4)	140.0 (7)
1250-1499 g	191.2 (13)	67.9 (7)	166.6 (10)
1500-1999 g	103.3 (22)	77.6 (8)	62.5 (12)
2000-2499 g	39.1 (27)	22.5 (8)	20.2 (12)
2500 + g	3.8 (57)	2.9 (21)	3.5 (52)
unknown	(9)	(1)	(3)
Sub-Total* 500 g +	11.8 (192)	8.2 (64)	8.9 (145)
Sub-Total* 1000 g +	8.2 (133)	6.2 (48)	5.9 (94)
TOTAL	12.9 (211)	8.6 (67)	10.6 (171)

(* unknown birth weight not included)

TABLE: VIII G - PERINATAL MORTALITY RATE BY BIRTH WEIGHT AND BY OBSTETRICAL VOLUME 3001 +

ONTARIO: 1979-1981-1983

Birth Weight	1979	1981	1983
<500 g	900.0 (9)	1000.0 (9)	878.8 (29)
500-749 g	875.0 (28)	696.4 (39)	791.6 (57)
750-999 g	518.5 (14)	311.7 (24)	329.1 (26)
1000-1249 g	210.5 (4)	139.5 (12)	150.7 (11)
1250-1499 g	310.3 (9)	140.0 (14)	106.8 (11)
1500-1999 g	103.2 (13)	64.2 (17)	67.1 (21)
2000-2499 g	23.1 (7)	30.9 (17)	36.4 (26)
2500 + g	2.9 (19)	2.6 (33)	2.5 (42)
unknown	(4)	(4)	(9)
Sub-Total* 500 g +	13.3 (94)	11.4 (156)	9.6 (175)
Sub-Total* 1000 g +	7.4 (52)	6.9 (93)	5.1 (92)
TOTAL	15.1 (107)	12.4 (169)	11.6 (213)

(* unknown birth weight not included)

FIGURE: B

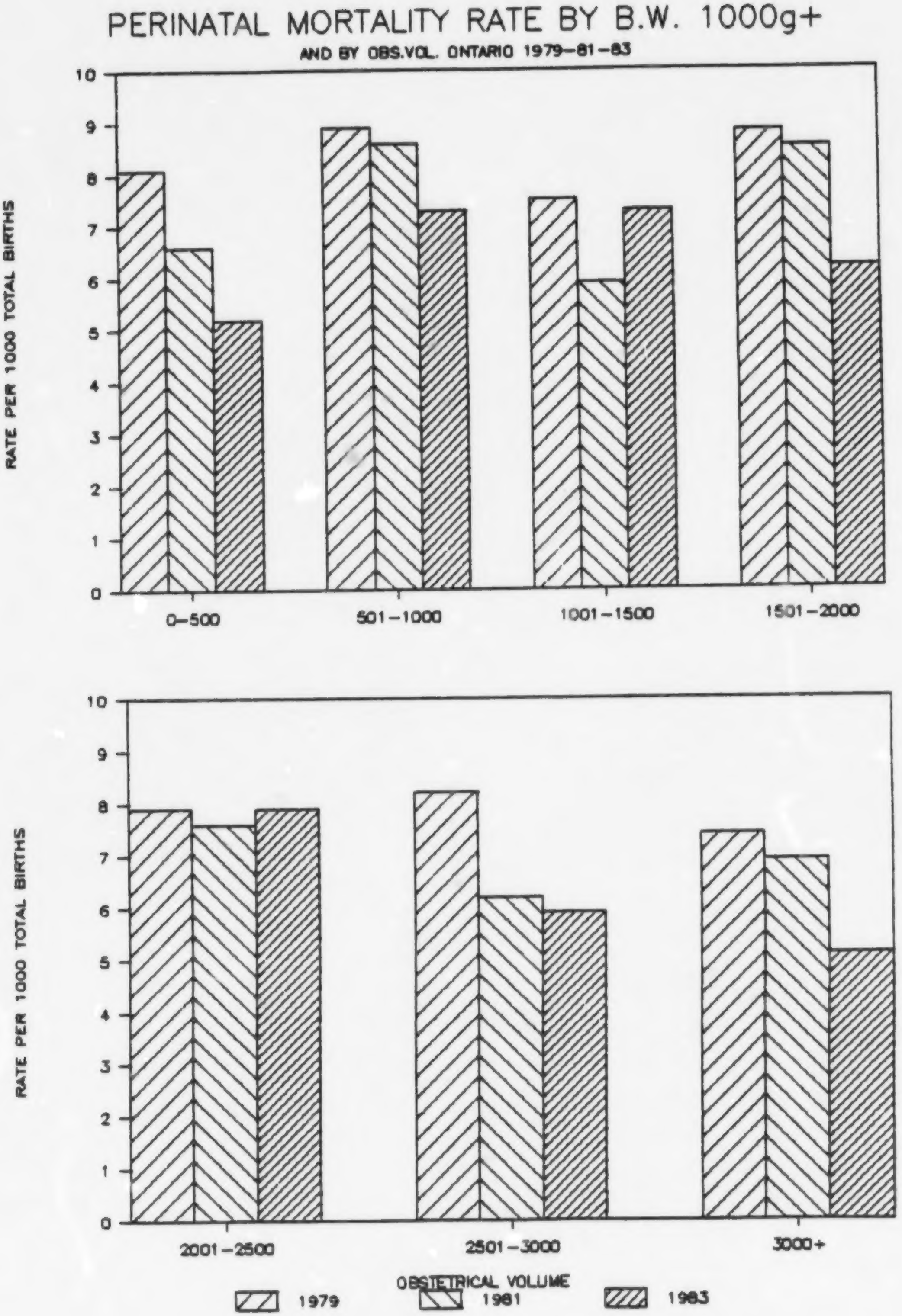

PERINATAL MORTALITY RATE BY B.W. 1000g+
AND BY OBS.VOL. ONTARIO 1979-81-83
RATE PER 1000 TOTAL BIRTHS
0
1
2
3
4
5
6
7
8
9
10
0-500
501-1000
1001-1500
1501-2000
RATE PER 1000 TOTAL BIRTHS
2001-2500
2501-3000
3000+
OBSTETRICAL VOLUME
1979
1981
1983

TABLE:IXC - EARLY NEONATAL DEATH RATE BY BIRTH WEIGHT AND BY OBSTETRICAL VOLUME 1001-1500

ONTARIO: 1979-1981-1983

Birth Weight	1979	1981	1983
< 500 g	888.9 (8)	1000.0 (13)	923.1 (12)
500-749 g	928.6 (26)	727.3 (16)	730.8 (19)
750-999 g	605.2 (23)	454.5 (10)	578.9 (11)
1000-1249 g	240.0 (6)	281.3 (9)	250.0 (3)
1250-1499 g	150.0 (6)	105.3 (4)	107.1 (3)
1500-1999 g	70.4 (15)	45.0 (10)	34.5 (5)
2000-2499 g	13.8 (12)	8.4 (8)	8.9 (6)
2500 + g	1.2 (25)	1.1 (26)	1.3 (24)
unknown	(4)	(2)	(0)
Sub-Total* 500 g +	4.9 (113)	3.2 (83)	3.8 (71)
Sub-Total* 1000 g +	2.8 (64)	2.2 (57)	2.2 (41)
TOTAL	5.4 (125)	3.8 (98)	4.4 (83)

(* unknown birth weight not included)

TABLE :IXD - EARLY NEONATAL DEATH RATE BY BIRTH WEIGHT AND BY OBSTETRICAL VOLUME 1501-2000

ONTARIO: 1979-1981-1983

Birth Weight	1979	1981	1983
< 500 g	1000.0 (28)	823.5 (14)	1000.0 (8)
500-749 g	836.4 (46)	740.7 (20)	583.3 (14)
750-999 g	354.2 (17)	375.0 (12)	192.3 (5)
1000-1249 g	189.7 (11)	184.2 (7)	100.0 (3)
1250-1499 g	70.6 (6)	163.3 (8)	125.0 (6)
1500-1999 g	45.3 (16)	40.5 (9)	14.0 (3)
2000-2499 g	13.5 (14)	18.8 (17)	8.7 (8)
2500 + g	0.9 (22)	1.5 (33)	0.9 (22)
unknown	(9)	(0)	(0)
Sub-Total* 500 g +	5.3 (132)	4.5 (106)	2.5 (61)
Sub-Total* 1000 g +	2.8 (69)	3.1 (74)	1.7 (42)
TOTAL	6.7 (169)	5.1 (120)	2.9 (69)

(* unknown birth weight not included)

TABLE: IXE - EARLY NEONATAL DEATH RATE BY BIRTH WEIGHT AND BY OBSTETRICAL VOLUME 2001-2500

ONTARIO: 1979-1981-1983

Birth Weight	1979	1981	1983
< 500 g	1000.0 (5)	772.7 (17)	848.5 (28)
500-749 g	760.0 (19)	581.4 (25)	555.6 (25)
750-999 g	393.9 (13)	268.3 (11)	235.3 (12)
1000-1249 g	230.8 (12)	207.5 (11)	111.1 (6)
1250-1499 g	151.5 (5)	101.4 (7)	61.9 (6)
1500-1999 g	40.9 (9)	28.9 (8)	35.3 (11)
2000-2499 g	11.9 (9)	12.1 (11)	8.1 (7)
2500 + g	1.2 (23)	1.0 (22)	1.5 (30)
unknown	(1)	(1)	(0)
Sub-Total* 500 g +	4.5 (90)	4.2 (95)	4.4 (97)
Sub-Total* 1000 g +	2.9 (58)	2.6 (59)	2.7 (60)
TOTAL	4.8 (96)	5.0 (113)	5.6 (125)

(* unknown birth weight not included)

TABLE: IXF - EARLY NEONATAL DEATH RATE BY BIRTH WEIGHT AND BY OBSTETRICAL VOLUME 2501-3000

ONTARIO: 1979-1981-1983

Birth Weight	1979	1981	1983
< 500 g	857.1 (6)	- (0)	727.3 (8)
500-749 g	666.7 (14)	500.0 (2)	472.2 (17)
750-999 g	195.1 (8)	333.3 (3)	147.5 (9)
1000-1249 g	102.0 (5)	153.8 (2)	65.2 (3)
1250-1499 g	127.0 (8)	181.8 (4)	56.6 (3)
1500-1999 g	30.5 (6)	30.6 (3)	20.1 (4)
2000-2499 g	10.4 (7)	11.4 (4)	11.9 (7)
2500 + g	0.9 (15)	1.1 (8)	1.1 (17)
unknown	(9)	(1)	(3)
Sub-Total* 500 g +	3.9 (63)	3.3 (26)	3.8 (60)
Sub-Total* 1000 g +	2.5 (41)	2.7 (21)	2.1 (34)
TOTAL	4.8 (78)	3.5 (27)	4.4 (71)

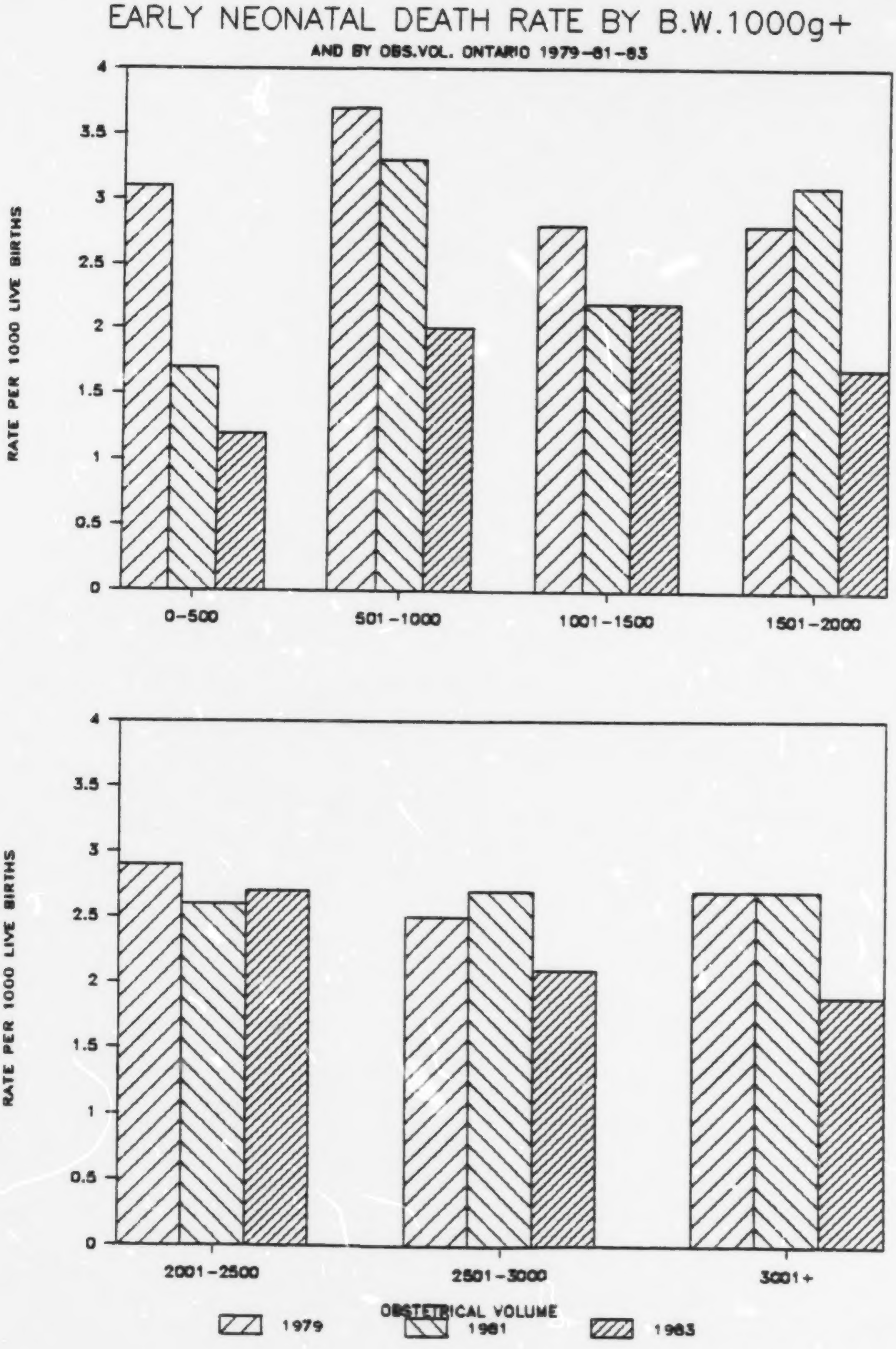
(* unknown birth weight not included)

TABLE:IXG - EARLY NEONATAL DEATH RATE BY BIRTH WEIGHT
AND BY OBSTETRICAL VOLUME 3001 +
ONTARIO: 1979-1981-1983

Birth Weight	1979	1981	1983
<500 g	800.0 (4)	1000.0 (3)	636.4 (7)
500-749 g	777.8 (14)	575.0 (23)	625.0 (25)
750-999 g	434.8 (10)	242.9 (17)	220.6 (15)
1000-1249 g	117.6 (2)	97.6 (8)	60.6 (4)
1250-1499 g	166.7 (4)	85.1 (8)	51.5 (5)
1500-1999 g	50.4 (6)	23.6 (6)	23.4 (7)
2000-2499 g	13.3 (4)	9.3 (5)	7.2 (5)
2500 + g	0.4 (3)	0.8 (10)	0.7 (13)
unknown	(4)	(4)	(7)
Sub-Total* 500 g +	6.1 (43)	5.7 (77)	4.1 (74)
Sub-Total* 1000 g +	2.7 (19)	2.7 (37)	1.9 (34)
TOTAL	7.2 (51)	6.2 (84)	4.8 (88)

(* unknown birth weight not included)

FIGURE: C



EARLY NEONATAL DEATH RATE BY B.W.1000g+

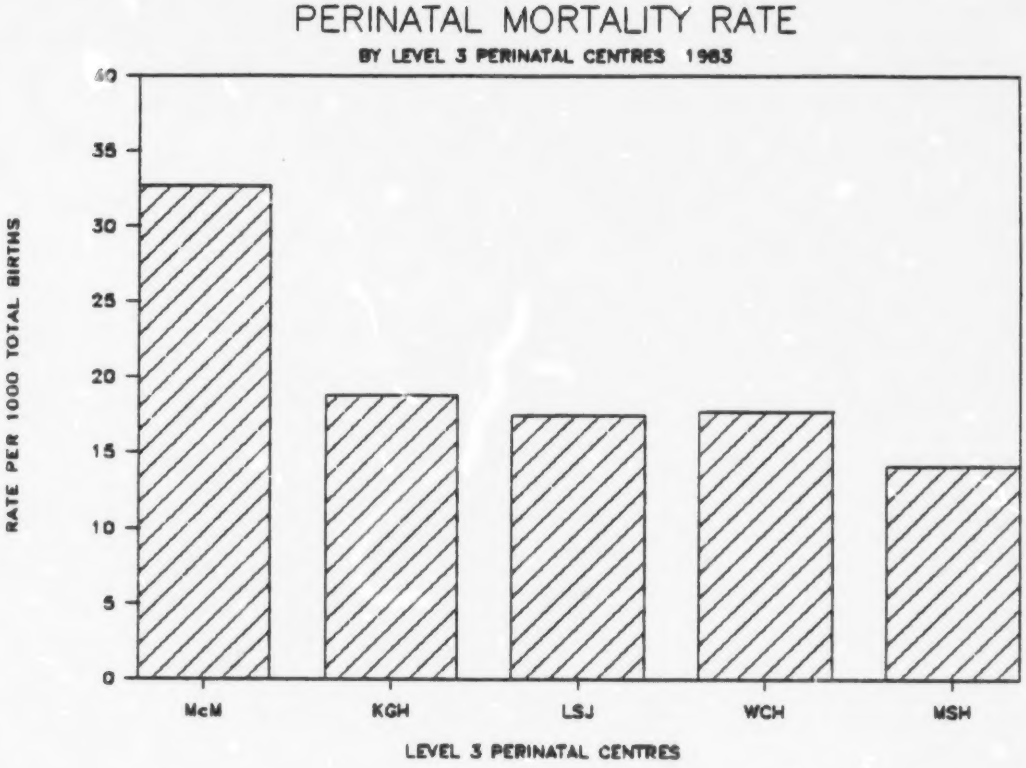
AND BY OBS.VOL. ONTARIO 1979-81-83

TABLE: X - PERINATAL MORTALITY RATE BY LEVEL 3 PERINATAL CENTRES AND BY BIRTH WEIGHT ONTARIO: 1983

BIRTH WEIGHT	Hamilton: Chedoke-McMaster (McM)	Kingston: Kingston General (KGH)	London: St. Joseph's (LSJ)	Toronto: Women's College (WCH)	Toronto: Mount Sinai (MSH)
<500 g	944.4 (17)	1000.0 (5)	850.0 (17)	875.0 (7)	1000.0 (7)
500 - 749 g	531.3 (17)	1000.0 (9)	687.5 (11)	548.4 (17)	760.0 (19)
750 - 999 g	266.7 (8)	500.0 (3)	205.9 (7)	108.7 (5)	217.4 (5)
1000 - 1249 g	228.6 (8)	400.0 (4)	80.0 (2)	88.2 (3)	137.9 (4)
1250 - 1499 g	92.6 (5)	157.9 (3)	119.0 (5)	75.0 (3)	29.4 (1)
1500 - 1999 g	51.7 (6)	96.2 (5)	60.3 (7)	34.1 (3)	65.8 (5)
2000 - 2499 g	8.3 (1)	17.5 (2)	33.1 (6)	24.6 (3)	63.8 (9)
2500 + g	5.0 (9)	4.7 (9)	3.2 (11)	3.6 (9)	1.0 (4)
unknown	(1)	(0)	(1)	(1)	(5)
SUB - TOTAL* 500 g +	24.7 (54)	16.5 (35)	12.8 (49)	15.0 (43)	11.3 (47)
SUB-TOTAL* 1000 g +	13.7 (29)	10.9 (23)	8.2 (31)	7.5 (21)	5.6 (23)
TOTAL	32.7 (72)	18.8 (40)	17.5 (67)	17.7 (51)	14.1 (59)

(* unknown birth weight not included)

FIGURE: D


PERINATAL MORTALITY RATE
BY LEVEL 3 PERINATAL CENTRES 1983
RATE PER 1000 TOTAL BIRTHS
40
35
30
25
20
15
10
5
0
McM
KGH
LSJ
WCH
MSH
LEVEL 3 PERINATAL CENTRES

APPENDIX G

REPORT OF THE SUBCOMMITTEE ON REPRODUCTIVE MORBIDITY

Members:

Dr. J.E. Milligan - Chairman; Minister's Advisory Committee
Dr. J. Chapman - Minister's Advisory Committee
Dr. G. Chance - St. Joseph's Hospital, London
Dr. E. Hoskins - Women's College Hospital, Toronto
Dr. R. Khazen - Ministry of Health
Dr. K. Pape - Hospital for Sick Children, Toronto
Dr. A. Shennan - Women's College Hospital, Toronto
Dr. P. Fitzhardringe - Mount Sinai Hospital, Toronto
Dr. S. Saigal - McMaster Health Sciences Centre, Hamilton
Dr. B. Wherrett - Kingston General Hospital, Kingston
Dr. M. Hardy - Ottawa, Ontario

A. MORBIDITY MARKERS

The problem of perinatal morbidity should be approached from two points of view which may subsequently be able to be interrelated:

1. The first area is to note hard, firm, clean markers of perinatal morbidity which could be documented prior to discharge of every neonate in the Province from hospital after birth. These markers should be simple and objective such that they could be filled out by a nurse or medical records department at time of discharge, as a provincial document, which would then be forwarded centrally for tabulation and collation of data. In cases where prior transfer had occurred, the notation should be referred back to the hospital of birth if indeed the hospital discharging the infant was different than the hospital of birth.

The first documentation should be birthweight with a notation of any infant of less than 1500 grams. It is recognized that this potential morbidity marker is already in the process of being carried out on a per hospital, regional and provincial basis. Such information on birthweight would be extremely helpful.

The other markers were markers to be notated on all infants greater than 1500 grams:

a. A convulsion - generalized motor seizure.

b. Any infant greater than 36 weeks gestational age who had required tube feeding for greater than 7 days in the absence of surgical reasons or congenital anomaly.

c. Any infant greater than 1500 grams requiring assisted mechanical ventilation for longer than 48 hours after birth. (This is to include C.P.A.P.)

d. Trauma, specifically peripheral nerve damage or cord damage, visceral damage, and limb or depressed skull fracture.

e. Proven meningitis.

The above notation of morbidity markers was not to attempt risk scoring but to note the incidence of these occurrences on a per hospital, regional, and provincial basis. It would be extremely helpful in morbidity review and audit at the hospital level and could well serve as entry criteria for public health departments to use in paying special attention to infants for follow-up activity once discharged to the home.

2. The second area of morbidity monitoring related to follow-up. It was recognized that this area was much more difficult both in definition of morbidity and in a practical and rational attempt to ensure that all such cases were in fact marked. The major areas of highly significant morbidity were those children who were blind, had major degrees of cerebral palsy, severe retardation or recurrent seizure activity. The great majority of such individuals were already picked up by the system with very rare exceptions. It was recognized that there could well be significant amounts of information on the presence or absence of these individuals in the province of Ontario, if data could be collated from various already operating resources. Availability and access to such information is not practical at the present time.

B. PRESENT PROGRAMS

The various Directors of Follow-Up Programs in tertiary centres were asked about the activity in their programs, all of which were extremely extensive. The program from McMaster University felt that they were fairly certain that all infants below 1000 grams born in the Central West Region of Ontario were in fact included in their follow-up program.

A high percentage (circa 86%) of those between 1000 and 1500 grams born within the region, were also included in the follow-up. The Southwest Region felt that this would be the case in the future with respect to their region but at the present time, firm data was not available. The other regions did not feel that they could state what the similar incidence was in their regions.

There was general agreement that the data being generated within the Ministry on stillbirths, livebirths and neonatal deaths by hospital, region and province according to weight groups would be of extreme value if forwarded to follow-up programs initially such that they would have a better idea of how many low birthweight infants were actually being followed or not. It was also suggested that once this information had been forwarded to the programs, that the Provincial Ministers Committee should consider asking information from these programs on number of patients entered per year and the outcomes that were being obtained in the various weight groups.

C. FUTURE USE

It was recognized that the above information might well help the Minister's Committee evaluate what actually was occurring in the Province. The best entry line is what is occurring at the time of discharge from hospital. This system would require significant back-up and education within the public health department to train individuals in recognition of proper markers once risk infants have been identified and then subsequent referral to level III resources if appropriate or necessary, could be carried out. It was suggested that if the Minister's Committee was interested, perhaps a pilot project in a small region could be considered with respect to the above hospital/community program.

There was general agreement that the concept of collection of morbidity data, both for information and delineation of etiology, as well as implementation of therapy was in theory of great value but at a practical level extremely difficult to carry out and probably very expensive. There was also general agreement that at the present time there was probably not any hard information on the best way to do this.

APPENDIX H

PROTOCOL
FOR
IMPLEMENTATION OF A
PROVINCIAL PERINATAL BED REGISTRY
AT
CENTRAL AIR AMBULANCE COMMUNICATION CENTRE

PURPOSE:

To facilitate and assist in the interregional transfer and transport of high risk mothers and neonates to high risk perinatal and neonatal centres.

REGISTRY:

A Provincial Perinatal Bed Registry (PPBR) is being established at the Ministry's Central Air Ambulance Communications Centre (CAACC). The Registry will be accessed through one telephone call to CAACC. It will provide the referring physician with an integrated service consisting of: resource status at each tertiary unit in the province, immediate interregional telecommunications capability and concurrent air and land ambulance transfer arrangements as appropriate.

BASIC PRINCIPLES:

- The PPBR will be used for interregional transfers to level III only. It would not be involved in intraregional transfers.

- Each tertiary centre will be responsible to provide and update accurate information to CAACC about the unit status. Without the current and timely input of tertiary centres the PPBR will not function effectively.

- The CAACC will function as facilitator for interregional transfer but would not make the decision about the need for transfer.

- The decision to transfer or not is to be made between the referring physician and the regional consultant.

- The special telephone number of the PPBR will be available to: the centres listed below, the consultants at these centres to pass on to the referring physicians when the regional consultants are unable to accommodate an intraregional transfer, and to hospitals in the north.

IMPLEMENTATION:

Role of CAACC

The Registry will be maintained centrally at CAACC by the Ministry (1st Floor, 15 Overlea Blvd., Toronto). This will include:

- the calling of the tertiary units on daily basis, around noon, to establish the unit status and the availability of beds
- the availability and 24 hour capability to access the registry by using the same numbers to access the Air Ambulance System. These numbers are:
  - For the Toronto area are only: 422-1144
  - For all other area codes, except area 807, the number is: 1-800-268-6159
  - For area code 807, the number is: 1-800-268-6197
- identification of available tertiary perinatal/neonatal resources to the caller
- provision of telecommunication for the physician caller with the consultant at the chosen or available tertiary level
- arranging for immediate land or air ambulance transfer, as appropriate

Role of Regional Tertiary Centres

The centres will set up the following arrangements:

- establishment of a bed reporting process and carrying out the required functions.
- identification of the person(s) in the perinatal or neonatal unit who will be contacted by CAACC about the unit status and the availability of beds. The same person(s) will also be responsible to notify the CAACC about the change in the unit status (see list of names and phone numbers).

- the unit status will be measured as per following codes:

  code C: unit is closed
  code I: unit can accept one maternal/neonate
  code M: unit can accept more than one maternal/neonate transfer

- if and when the unit status changes during a given 24 hour period, the person responsible should notify CAACC of the change in code using the government Centrex number (416) 963-3589

- provision of a hot line number and a back-up number to CAACC to allow linking the physician caller with the regional consultant at the unit

- the unit will have a mechanism in place to allow CAACC to obtain consultant resources

- CAACC will monitor communications and arrange transfer, if appropriate

The following tertiary centres will be included in the initial implementation process:

PERINATAL CENTRES: LEVEL III

- Toronto: Women's College Hospital,Mount Sinai Hospital
- Hamilton: McMaster Health Sciences Centre
- London: St. Joseph's Hospital
- Kingston: Kingston General Hospital

NEONATAL CENTRES:

- Toronto: Hospital for Sick Children
- Ottawa: Children's Hospital of Eastern Ontario

THE IMPLEMENTATION DATE IS DECEMBER 1ST, 1985

CONCLUSION:

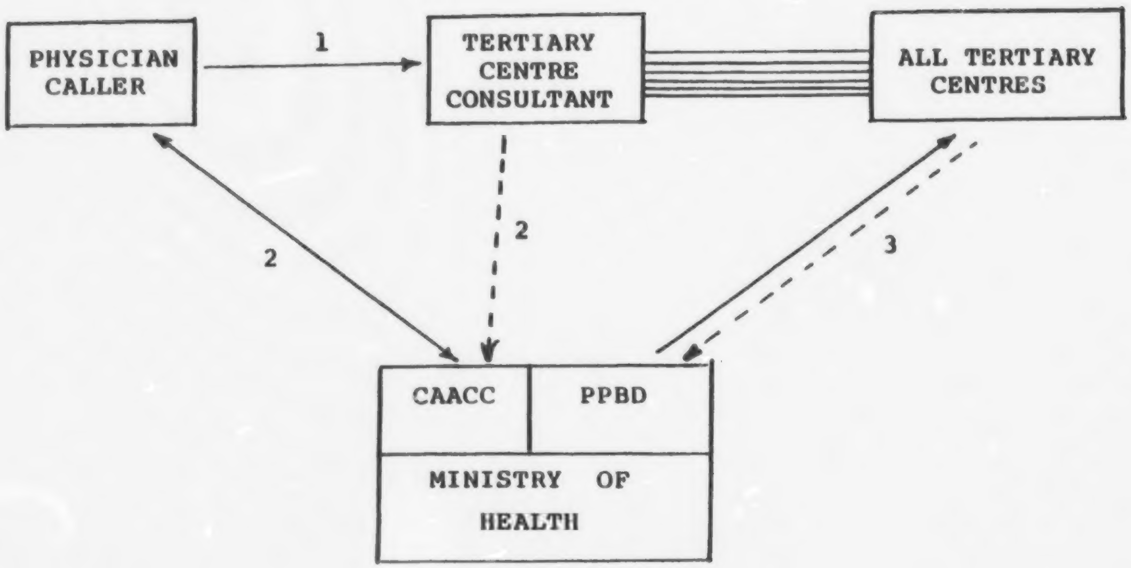
The PPBR will facilitate the process of finding an interregional maternal/neonatal bed and speed up the transport as required.

In the future, the other teritary centres that are being developed will join the system to have a complete provincial network.

STATUS AND ACCESS PHONE NUMBERS

HOSPITAL	UNIT STATUS (PHONE NO.)	UNIT ACCESS (PHONE NO.)
Ottawa: Children's Hospital of Ontario	(613) 737-2461 or back up # (613) 737-7600	Neonatal (613) 737-2461 or (613) 737-7600
Kingston General Hospital	(613) 548-2320	Maternal: (613) 548-2315 Neonatal: (613) 548-2320
Toronto: Women's College H.)) Mt. Sinai Hospital)	(416) 966-8888	Maternal/Neonatal: (416) 966-8888
Hospital for Sick Children	(416) 598-6927	(416) 598-6927
Hamilton: Chedoke McMaster	(416) 529-1600 or (416) 521-2100 Ext. 5459	Maternal (416) 529-1600 Neonatal: (416) 521-5025 or (416) 521-2100 Ext. 5459
London: St. Joseph's Hosp.	(519) 439-7533	Maternal/Neonatal (519) 439-3271 and page

FLOW CHART


PHYSICIAN CALLER
1
TERTIARY CENTRE CONSULTANT
ALL TERTIARY CENTRES
2
2
3
CAACC
PPBD
MINISTRY OF HEALTH

1. First call from physician to tertiary centre to discuss transfer. If centre full and need for interregional transfer has been established, then

2. Either the physician or the consultant calls CAACC to locate a bed in other tertiary centres and arrange transfers.

3. CAACC will call the tertiary centres daily around noon to get the unit status and the tertiary centres will notify CAACC of change in code status as necessary.

APPENDIX I

Emergency Inter-Hospital Maternal Transfer Guidelines

O.M.A. Committee on Perinatal Care

The following guidelines have been developed by the Committee on Perinatal Care in an attempt to improve both the safety and effectiveness of patient care. At this tentative stage of development of the guidelines there are many areas that have not been fully explored, leaving final standards or decisions to be developed in these areas.

The Committee would be pleased to receive comments with respect to improvement or modification of these guidelines before they are presented to O.M.A. Council for approval. Comments should be sent to the Chairman, Dr. John Milligan, c/o Ontario Medical Association, 240 St. George Street, Toronto M5R 2P4.

Introduction

Regionalization of perinatal care has been endorsed by the Government of Ontario, press release by the Minister of Health in 1980 outlined plans to form Perinatal Advisory Committees in the six health care planning regions of the province, i.e. Northeast, Northwest, Southwest, Central West, Central East, and East. One important aspect of regionalization is the development of facilities and services in secondary and tertiary level centres for the care of mothers and newborn infants identified to be at risk. Many perinatal problems can be anticipated and handled through ambulatory referral for consultation. These guidelines are specifically intended to assist physicians involved in *emergency* or *semi-emergency* transfer of the mother. Available evidence suggests that outcome for the high-risk neonate is improved by antenatal transport to specialized centres as opposed to neonatal transport.[1,2,3] Furthermore, maternal transport ensures that adequate skills and facilities for resuscitation will be available at birth, thereby avoiding the problems of cardio-respiratory support and temperature regulation associated with transport of the sick neonate.[4,5]

The following guidelines for maternal transport have been drawn up by the O.M.A. Committee on Perinatal Care in collaboration with a Sub-Committee on Maternal and Neonatal Transport of the Advisory Committee on Reproductive Care to the Minister of Health. It is hoped these guidelines will assist those physicians involved in the care of pregnant women to ensure that maternal transfer, when indicated, is safely and appropriately carried out. It must be emphasized, however, that these are general guidelines only; specific details of management vary from one region to another. Close liaison and communication with the perinatal centre is the only mechanism to ensure the appropriate response and treatment related to that centre.

The Ontario Antenatal Record provides guidelines for the assessment of risk. Pregnancies at highest risk (Grade C) usually will need to be transferred to a Regional Perinatal Centre (Level III), while those of lesser risk (Grade B) may need to be transferred to a Level II hospital. However, each hospital must develop guidelines relative to the local situation, depending on the availability of facilities and expertise and the geographical location of Level II and Level III hospitals.

It is essential that telephone consultation take place between the referring and receiving physicians when maternal transfer is contemplated to discuss the indications for transfer and determine what treatment, if any, should be undertaken before or during transport. Even if the decision to transfer the patient is clear-cut, telephone consultation is essential to determine the ability of the referral centre to accommodate the patient or identify an alternative centre if necessary.

Responsibility for Care

The patient should always be transferred from the care of one physician to another physician. Physicians should decide before transportation who will be responsible for the care of the patient en route.[6] In general, during transportation, the referring hospital will provide personnel to accompany the patient to the receiving hospital and will be responsible for the patient until she is handed over to the care of the receiving physician. On the other hand, if a transport team is sent out from the receiving hospital and accompanies the patient en route, the receiving physician will be responsible.

Psychosocial Aspects

An important aspect of transfer is a clear explanation to the patient and her family of the reasons for recommending transfer. It is essential to obtain the patient's consent and cooperation, especially when long distances between referring and receiving hospitals are involved. Those involved in the patient's care should be aware of and sympathetic to the problems and potentially adverse effects of prolonged separation of the patient from her family.

Indications

Common indications for inter-hospital transfer of the mother in an emergency or semi-emergency situation are as follows:

1. Pre-term labour, i.e. labour before 34 weeks (and before 37 weeks in some situations depending on facilities for care of the newborn infant in the hospital of origin).
2. Spontaneous rupture of the membranes with or without labour in pre-term pregnancy.

3. Antepartum haemorrhage, particularly in pre-term pregnancy.
4. Hypertensive disorders of pregnancy.
5. Any serious medical complication of pregnancy, i.e. metabolic, including diabetes, renal, hepatic, gastroenterological, neurological, haematological, etc.
6. Multiple gestation when pre-term delivery threatens or any other complication occurs.
7. Serious congenital anomalies diagnosed before birth unless incompatible with life (anencephaly).
8. Presence of oligohydramnios or polyhydramnios.
9. Moderate or severe intrauterine growth retardation.
10. Surgical conditions of pregnancy including acute abdomen, trauma and motor vehicle accidents.
11. Term or pre-term labour complicated by a problem in which the mother, fetus or newborn is at risk, e.g. bleeding tendencies likely to complicate delivery in the mother, immune thrombocytopenia with potential risk of haemorrhage in the fetus/newborn, rhesus immunization.
12. Post-partum problems when facilities for diagnosis and treatment are unavailable in the hospital of origin.

Contraindications

1. Maternal condition unstable and could be improved before transport, e.g. shock due to antepartum haemorrhage.
2. Fetal conditions unstable, e.g. acute fetal distress (unless hospital of origin lacks facilities for immediate delivery).
3. No experienced personnel available to accompany patient.
4. Patient in active labour and delivery imminent.
5. Travel conditions too hazardous for transport.

Remember that it is much easier to provide care for a patient in a hospital than in an ambulance.

Prerequisites

1. Communication between the referring doctor and receiving consultant is essential to outline the clinical problem, determine the mode of transport and identify any special requirements during transport. Level II and III units should establish telephone numbers and designated personnel for consultation on a 24-hour basis. The hospital switchboard must be able to contact an obstetrical consultant for this purpose at all times, and calls should be relayed with a minimum of delay.
2. Stabilization of the patient's condition may be necessary before transport can be undertaken.
3. Assessment of uterine activity and cervical dilatation of the patient in labour. Patients who are at risk of delivery before reaching another centre should not be transported but should be retained in their own hospital and arrangements made for neonatal transport.
4. Assessment of the fetal condition to determine the presence or absence of fetal distress before transport. Patients with acute fetal distress should generally not be transported and should be delivered as quickly as possible in their own centre, if suitable facilities are available. Subsequent arrangements can be made for neonatal transport if necessary.
5. Special treatment may need to be instituted before transport, e.g. magnesium sulfate, tocolytic therapy, intravenous fluids, blood, etc.
6. Suitably trained personnel and appropriate equipment and supplies to deal with emergencies en route should accompany the patient.

Comments on Transport for Special Indications

Antepartum Haemorrhage

The majority of patients with antepartum haemorrhage due to placenta previa can be transported without risk when the acute episode of bleeding has subsided. An intravenous infusion line should be established before transport and, if necessary, the patient's condition stabilized by administration of fluids and/or blood. During transport the intravenous line should be kept open, and cross-matched blood (if available) should be sent with the patient in the transport vehicle. Occasionally, bleeding is severe enough to be lifethreatening and immediate delivery must be undertaken in a peripheral hospital. Neonatal transport should then be arranged if necessary.

Vaginal examination should be avoided in patients with antepartum haemorrhage when placenta previa is clinically suspected until facilities are available for emergency delivery.

Patients with antepartum haemorrhage due to abruptio placenta of mild to moderate severity generally can be safely transported to another centre. However, in severe abruptio placenta associated with maternal shock and/or fetal distress, the patient may need to be resuscitated and/or delivered in the hospital of origin. When coagulation problems are also present, valuable assistance can be obtained through a telephone conference between the community physician and an obstetrician and haematologist in the tertiary centre. At that time advice can be obtained about the most appropriate blood products to use and the safest course of action to pursue.

Premature Labour

1. It will be helpful to collect as much data as possible to establish the dating of the pregnancy before the patient is transported. These records should be forwarded to the referral centre with the patient.
2. The frequency and duration of uterine contractions should be determined prior to transport, and the need for medication before or during transport should be discussed with the referral centre.
3. The fetal presentation and fetal heart rate should be checked before transfer.
4. State of the cervix and membranes should be determined and the risk of delivery en route must be carefully weighed against the benefits of transferring the mother to another centre. The decision to transport the mother or not will depend on the type of transport available, distance from the referral centre, cervical dilatation, and the rate at which labour is progressing. Delivery en route is likely to be more hazardous for both mother and baby than delivery in the referring hospital. Arrangements can be made for noenatal transport if delivery occurs in a peripheral hospital.
5. The use of drugs which inhibit uterine activity may be desirable before and during transport. The indications for therapy should be critically reviewed between the referring and receiving physicians before transport. If potent tocolytic agents, e.g. Vasodilan, with potentially serious side-effects such as hypotension or pulmonary oedema are to be used, transport should be delayed until the patient has been stabilized on a maintenance dose (see *Appendix II*). The drug should be given during transport only if properly trained personnel familiar with its administration are available to accompany the patient. Caution must be advised as the risks and benefits of these agents are still under investigation, as are situations in which their use might be considered appropriate.

Premature Rupture of the Membranes

The diagnosis can be established by viewing the cervix through a sterile speculum for cascade of fluid into the vagina. Confirmation can be obtained by a positive nitrazine test if in doubt. If cervical cultures are obtained, they should be placed in transport media and should accompany the patient. If the patient is in labour, a vaginal examination should be carried out to determine the cervical dilatation, fetal presentation and the presence or absence of prolapsed umbilical cord.

Eclampsia, Severe Pre-eclampsia and Hypertensive Disease

The risks of transport include:

(a) Development of convulsions.

(b) Aspiration of stomach contents.
(c) Development of cerebral vascular accident.

In general, it is safe to transport these patients, but discussion with the referring centre will determine whether transport should be attempted after stabilization and what type of medication should be given prior to or during transport. In all cases, an open intravenous line should be maintained with an infusion of 5% dextrose in water to permit administration of anticonvulsant or hypotensive agents. If intravenous magnesium sulfate is to be used during transport, a physician skilled in endotracheal intubation should accompany the patient because of the danger of respiratory depression.

In patients with severe hypertension (diastolic pressure more than 110 mmHg) it is wise to consider the administration of an antihypertensive agent such as hydralazine (Apresoline) in small bolus doses prior to and/or during transport.

The usual dose of the various drugs used in the treatment of severe pre-eclampsia is outlined in the section on the recommendations for kits to accompany the patient in the ambulance.

Reverse Maternal Transfer

Transfer of the mother back to the hospital of origin before or after delivery may be appropriate in some instances. A summary of events which have taken place together with information on current medications and a plan of management must accompany the patient. Reverse transfer should take place only if the patient's own physician or an alternate is willing to accept responsibility for continuing care. Specific arrangements for continuing care should be made at the time of discharge from the perinatal centre and the patient should be given clear instructions about appointments and follow-up.

Air Transport

Special precautions must be taken in administration of intravenous fluids during air transport. Collapsible solution bags should be used to avoid the problem of gas expansion at altitude, and a battery-operated constant infusion pump is essential to regulate infusion rates. Most commercial aircraft will adjust cabin pressure to an altitude of 5,000-8,000 ft. for high-altitude flights. At a simulated cabin pressure of 8,000 ft., atmospheric PO_2 will be 116 mmHg and alveolar PO_2 only 59 mmHg.[1] Thus, both maternal and fetal hypoxia are a major consideration on high-altitude flights and many patients will benefit from administration of oxygen.

Antepartum Transfer Kit

In addition to the various ambulance maternity kits, inclusion of the following medications and equipment should be considered where indicated:

Medications

Pethidine (Demerol)	Use:	Analgesic
	Supplied:	2 ml ampuls containing 50 mg/ml
	Dose:	50-100 mg i.m. 10-20 mg i.v.
Diazepam (Valium)	Use:	Sedative, Anticonvulsant
	Supplied:	2 ml ampuls containing 5 mg/ml
	Dose:	5-10 mg i.m. or i.v.
Isoxsuprine (Vasodilan)	Use:	Inhibition of uterine contractions
	Supplied:	20 ml ampuls — 5 mg/ml
	Dose:	20 mg i.m. every 3-4 hours or by continuous i.v. infusion (See Appendix II)
Magnesium Sulfate	Use:	Anticonvulsant
	Supplied:	10 ml ampuls — 0.5 gm/ml
	Dose:	5 gm (10 ml) by deep i.m. injection in each buttock (total 10 gm) (See appendix III for intravenous doses)
Calcium Gluconate	Use:	Antidote for magnesium sulfate toxicity
	Supplied:	10 ml ampuls — 0.1 gm/ml
	Dose:	10 ml (1 gm) given slowly i.v. over 3 minutes for respiratory, depression
Dimenhydrinate (Gravol)	Use:	Antinauseant
	Supplied:	1 ml ampuls of 50 mg/ml or 10 mg/ml
	Dose:	50-100 mg i.m. every 4 hours to maximum of 300 mg daily *or* 10 mg i.v. given slowly as bolus *or* 50 mg i.v. diluted in 500 ml 5% dextrose in water
Hydralazine (Apresoline)	Use:	Antihypertensive agent
	Supplied:	1 ml ampuls — 20 mg/ml
	Dose:	Initial — 5 mg i.v. bolus Repeat — 10 mg i.v. if BP > 110 mmHg diastolic after 15 minutes. Thereafter repeat doses of 5-20 mg i.v. whenever diastolic reaches 110 mmHg.

Other useful drugs to include are digoxin, aminophyllin, and ampuls of 50% dextrose. It is important to maintain an open intravenous line of 5% dextrose or normal saline in all patients where intravenous medications may have to be given. Medications should be given via a second intravenous line piggy-backed into the first line so that a rapid switch to non-medicated fluids can be made if necessary. The total amount of fluid used for maintenance therapy should be about 100-150 ml per hour.

Intravenous Solutions and Tubing

Normal saline, 500 ml/1000 ml
5% dextrose in water, 500 ml/1000 ml
2/3 5% dextrose and 1/3 normal saline, 500 ml/1000 ml
Plasma 500 ml
Standard i.v. tubing
I.V. administration set for blood
Angiocaths, assorted sizes
Tourniquet, adhesive tape, alcohol swabs
Vials of sterile water and saline for i.v. injection (10 ml)
Assorted needles and syringes

Miscellaneous Equipment

1. Stethoscope
2. Sphygmomanometer
3. Battery-operated constant infusion pump
4. Scissors and sterile towels
5. Oxytocin for prevention/control of post-partum bleeding
6. Reflex hammer
7. Airways — several sizes
8. Ambubag for adults
9. Fetal stethoscope — Doptone
10. Emesis basin
11. Sterile gloves — assorted sizes
12. Endotracheal tubes, assorted sizes
13. Peripads
14. Lubricant
15. Antiseptic agents, e.g. Aqueous Savlon 1:30
16. Laryngoscope with spare batteries and bulbs
17. Flashlight

If a potential for delivery exists, equipment for newborn resuscitation must be present, as follows:

1. Neonatal laryngoscope and blades
2. Neonatal self-inflating bag and masks
3. Neonatal endotracheal tubes sizes 2.5 to 4
4. De Lee mucus aspirators
5. Cord clamp

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Appendix I: Checklist for Referring Hospital Before Transfer

1. Communicate with receiving physician and give estimated time of arrival of patient.
2. Discuss the reasons for recommending transfer with the patient, and obtain her consent.
3. Write a note to receiving doctor outlining problems and specific details of treatment to that time.
4. Give clear instructions to transport team, including hospital of destination, receiving ward, name and telephone number of receiving doctor, indications for transport and need for special equipment.
5. Give appropriate medications before transport and outline *in writing* plan for medications to be given during transport, i.e. indications, dose, route of administration, frequency, etc. Administration of certain medications by the i.v. route may be restricted to a physician, in which case the physician must accompany the patient.
6. Send copy of Ontario Antenatal Record I and II. (Note: If these records are not available at the time of transfer, they should be forwarded as soon as possible.)
7. Send copies of other pertinent records including laboratory, ultrasound, fetal monitoring records, X-rays.
8. Arrange for appropriate personnel to accompany the patient.
9. Check the patient's status immediately before departure:
   - — Is she fit for transport?
   - — Is she likely to deliver en route?

Appendix II: Guidelines for Intravenous Administration of Vasodilan (Isoxsuprine HCl) for Maternal Transport

Indications:
Control of premature labour.

Availability:
Ampuls of 20 ml containing 5 mg/ml isoxsuprine.

Solution:
20 ml (100 mg isoxsuprine in 500 ml 5% dextrose). Concentration = 0.2 mg per ml.

Administration:
1. Nurse patient flat in lateral position.
2. Piggy-back Vasodilan into regular infusion set using microdrip.
3. Record pulse, PB, PHR and contractions every 5 mins. until maintenance dose achieved and vital signs stable, then every 15 mins.
4. Start at 0.2 mg/min (1 ml/min.).
5. Increase by 0.1 mg/min every 15 mins. until contractions are reduced, or max. 0.5 mg/min.
6. I.V. and oral fluid intake generally should not exceed 150 ml/hour.
7. Document intake and output.

Maintenance:
Usually 0.2-0.4 mg/min., preferably using a battery-operated infusion pump.

Adverse Effects:
Include hypotension, tachycardia, cardiac arrhythmias, pulmonary oedema, myocardial insufficiency.

Discontinue Vasodilan immediately if:
1. BP less than 90/50 mmHg.
2. Pulse rate over 120 bpm or arrhythmia.
3. Dyspnea or basal lung crepitations.
4. Chest pain or tightness.
5. Signs of fetal distress.

Precautions:
If Vasodilan is to be used *during* maternal transport to a referral centre, the patient should be *stabilized on a maintenance dose first*. The progress of cervical dilatation must be monitored before departure *to avoid delivery en route*. Vasodilan should be maintained at the *minimum effective dose* without inducing maternal hypotension. If BP, pulse or infusion rate cannot be adequately monitored during transport (noise level, motion, etc.) Vasodilan *should be discontinued for the duration of the trip*. The patient *must* be accompanied during transport by medically competent personnel skilled in obstetric care and administration of Vasodilan.

If in doubt, phone the referral centre again before transporting the patient.

Appendix III: Guidelines for Intravenous Administration of Magnesium Sulfate for Maternal Transport

Indications:
Prevention and/or control of convulsions in eclampsia. Control of hyper-reflexia in severe pre-eclampsia.

Availability:
Ampuls containing 5 gm/10 ml (50% solution MgSO4).

Solution:
40 ml of 50% MgSO4 (20 gm) in 500 ml 5% Dextrose. Concentration = .04 gm per ml or 4 gm per 100 ml.
To control Seizures
4 gm (100 ml) given i.v. over 15 minutes.
To control Hyper-reflexia and Clonus
At least 2 gm (50 ml) given i.v. over 15 minutes.

Maintenance Dose:
These dosages can be safely given if the urine output is ml/hour or more.
Start at 1 gm/hour. Piggy-back MgSO4 into regular infusic set, preferably using a battery-operated infusion pump.

1. Check reflexes, upper and lower limbs and ankle clonus 30 mins. If still hyper-reflexic, increase MgSO4 by gm/hour. If no reflexes, discontinue MgSO4 until reflex return and restart at lower dose. Usual maintenance dc is 2 gm/hour.
2. Check reflexes and respiratory rate at half-hourly interva Respiration rate should be at least 12/minute.
3. Insert Foley catheter into bladder. Check urine output hou — should be no less than 30 ml/hour.

Toxicity:
Absent or depressed reflexes.
Depressed respiration.
Loss of muscle tone.

Antidote:
Calcium gluconate (1 gm in 10 ml) given slowly intravenou

Precautions:
Patient should be *stabilized* on maintenance dose bei transport. Must be accompanied by a medically competent son skilled in obstetric care, administration of i.v. magnes sulfate and endotracheal intubation. If observations cannc adequately made during transport or i.v. infusion rate ca be adjusted, medication should be discontinued for duration of transport or patient should not be transferred.

APPENDIX J

GUIDELINES FOR TRANSPORT OF INFANT BY TRANSPORT TEAM HOSPITAL FOR SICK CHILDREN

A. ABSOLUTE INDICATIONS:

- All infants between 23 and 28 weeks gestation.
- All infants with respiratory distress i.e. 0_2 requirement >50%, including RDS, wet lung disease, aspiration syndrome, pneumonia and others.
- All asphyxiated infants with ongoing ventilatory requirements.
- Shock.
- Infants who are unstable with suspected sepsis.
- Seizures.

B. INFANTS WHO MAY BE TRANSPORTED BY THE REFERRING HOSPITALS:

- Congenital heart disease (except with severe acidosis).
- Stable surgical infants, without life-threatening conditions.
- Infants with dusky spells/apnoeas.
- Congenital anomalies including suspected renal anomaly.
- All non-ventilated infants from Women's College Hospital (WCH) or Mount Sinai Hospital (MSH) should be transported by these hospitals. Ventilated infants from WCH are transported by the transport team from Hospital for Sick Children.

C. GUIDELINES FOR TRANSPORT OF INFANTS BY TRANSPORT TEAM WITH A FELLOW:

- Premature twins 28 weeks and under gestation or multiple births - threshold for relative indications for fellow transport is reduced, proportional to number of infants and severity of illness.
- Persistent pulmonary hypertension.
- Suspected lethal condition.
- Diaphragmatic hernias - ICU fellow attends.
- For a delivery room resuscitation locally (Toronto General Hospital, TGH), a fellow may attend, with a nurse, where it is considered that the infant is very likely to require transfer to HSC. This applies mainly to gestations < 32 weeks in which TGH has been unable to transfer the mother to either of the Perinatal Centres.
- Overwhelming sepsis.
- A fellow will join the transport team if the infant's condition is deteriorating and the infant cannot be stabilized for safe transport.

March 29, 1984